products finishing

JULY
1960

New "Dip-Finished" Plymouth Takes a Shower to Test for Leaks . . . Page 60

AES NATIONAL CONVENTION ISSUE

finishes on metal products

IN THIS ISSUE:

Trends in Plating Zinc Die Castings . . Page **66**
Chemical-Milling Specialists . . . . . Page **72**
Fast-Drying Automotive Paint . . . . . Page **92**
Table of Contents . . . . . Page **5**

ROHCO® — for YEARS AHEAD Finishes

FOR ZINC PLATING

ROHCO 503 STILL OR BARREL ZINC BRIGHTENER (LIQUID)—produces jewel-like bright zinc deposits; ideal where one brightener is desired for all your bright zinc baths.

ROHCO 100 AND 100 SPECIAL BARREL BRIGHTENERS (LIQUID OR POWDER)—the most widely used of all barrel zinc brighteners; brilliant, bluish deposits directly from the plating tank.

ROHCO 175 BARREL BRIGHTENER (POWDER)—less brilliance but greatest economy.

ROHCO 150 (POWDER) AND PERMA-BRITE B-150 (LIQUID) BARREL BRIGHTENERS—the most economical barrel brighteners on the market; for maximum brightness a bright dip is required.

PERMA-BRITE S-400 STILL BRIGHTENER (LIQUID)—somewhat less brightness than with ROHCO 503, at lower cost.

ROHCO ZW-600—wetting agent for cyanide zinc baths. Eliminates scum on the surface, lowers drag-out, and improves plating bath operation in both barrel and tank.

ROHCO ZINC-SOL—double strength, purified make-up or replenishment solution for instant bright plating.

ROHCO ZINC PURIFIER—to keep baths in tip-top shape for unfailing quality and appearance.

RODIPS—short-dip chromate treatments supplied as powders to brighten, passivate, and protect zinc plate for improved corrosion resistance and color retention. Receptive to subsequent absorption of dyes for color identification of parts. Colors from clear blue bright through bronze.

FOR CADMIUM PLATING

ROHCO 20XL and SUPER XL (LIQUID OR POWDER)—tops for producing the clearest, brightest barrel, or still cadmium; minimizes cadmium usage by improving uniformity and speed of deposit.

RODIP CD-3 and CD-4—single short-dip chromate post-plating treatment without leach for brilliant cadmium and good corrosion protection; CD-3 for automatic tank or barrel, CD-4 for manual operations.

CAD-SOL—a heavy solution of cadmium cyanide for easiest bath make-up or maintenance.

FOR CHROMIUM PLATING

ROHCO ANTI-SPRAY—produces foam blanket which eliminates chrome mist, safe for hard chrome baths.

ROHCO SUPER NO-CRO-MIST®—safeguards workers' health by eliminating chrome fumes, solves ventilating and heating problems; saves chromic acid.

FOR ALUMINUM

ANODICATOR THICKNESS TESTER—an approved, new instrument for electrically checking thickness of anodic coatings. Completely automatic.

RODIP AL-44—additive for aluminum bright dips. Produces increased luster at lower temperature and suppresses acid fumes.

RODIP AL-50—single dip chromate treatment for aluminum and its alloys to give outstanding corrosion resistance and/or excellent bonding of paint.

FOR ALL PLATING

ROHCO RINS-AID®—water-shedder additions to rinse cycle to improve drying and to prevent staining.

HULL CELLS, HANGING HULL CELL and RECTIFIERS—used world-wide for control of plating baths.

And remember, ROHCO offers a complete line of equipment and chemicals for all your plating needs!

-----Nationwide Stockpoints-----

R. O. HULL & COMPANY INC.

1304 Parsons Court • Rocky River 16, Ohio

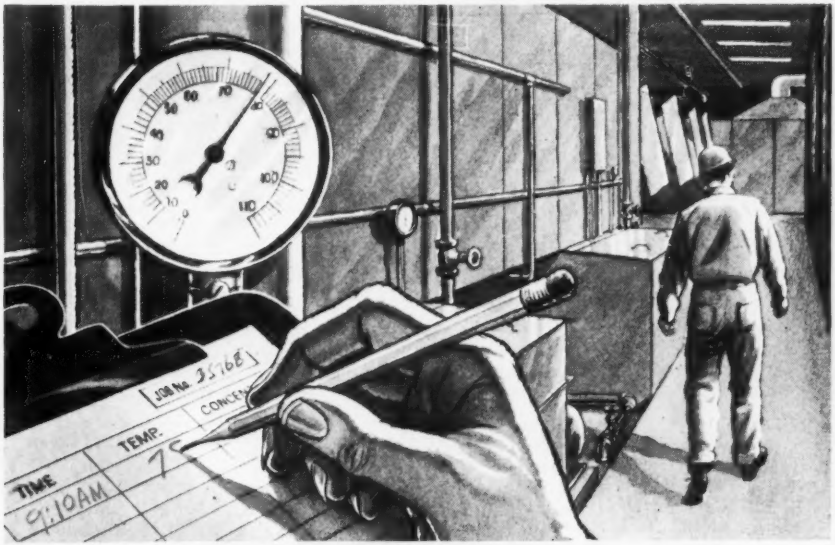
The RIGHT START . . . a BETTER FINISH

For more data circle 301 on Postpaid Card

To get the most economical spray washing

ask Oakite

OVER 50 YEARS CLEANING EXPERIENCE • OVER 250 SERVICE MEN • OVER 160 MATERIALS



Oakite ROOM-TEMP cleaner cuts solution heating costs

That's right! Oakite Room-Temp cleaner gives good cleaning results at 70° to 100°F.—the temperature range you find in most industrial cleaning areas. This cleaning efficiency can save you money on steam normally required for heating of cleaning solutions.

Designed primarily for spray-wash machines, Room-Temp cleaner is non-foaming . . . good for steel, iron, brass, aluminum . . . has no odor . . . requires no ventilation.

Room-Temp cleaner provides top rust protection for in-process parts, too. It dries to a thin film that stops corrosion from attacking iron and steel for more than 300 hours at 90% humidity, 100°F.

ASK THE OAKITE MAN to tell you more . . . or to help you choose from the complete Oakite line a spray-washing material that offers most economy for the parts you're processing. Or, write for application data sheet B-6972. Oakite Products, Inc., 20 Rector Street, New York 6, N. Y.

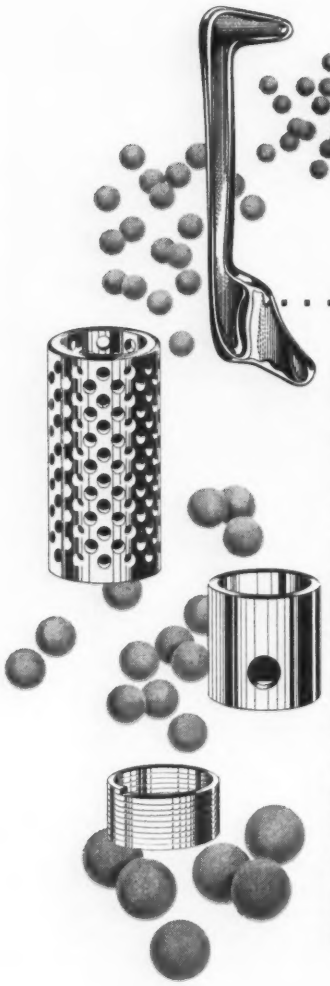
it PAYS to ask Oakite

OAKITE

over 50 Est. 1909 SCIENCE

years' leadership in industrial cleaning

For more data circle 304 on Postpaid Card



For parts like these...

barrel-finishing

is best finishing

...with TUMBLEX* "S"

Barrel-finishing not only gives parts the best finish — it's the fastest, easiest way to cut your finishing costs-per-piece.

To make sure of this, combine the right barrel-finishing techniques with the right abrasives. And to make sure of the right abrasives choose from the complete Norton line, which covers the entire range of barrel-finishing.

If your metal parts have hard-to-get-at areas — like any of those shown — Norton TUMBLEX "S" abrasives are your best choice. These spheres of bonded ALUNDUM* abrasive roll around and through intricate parts giving high quality and uniformity of surface finish.

Made in 5 sizes, TUMBLEX "S" spheres are made to extremely close diameter tolerances — and they wear down so slowly and evenly they can be used over and over for the same top quality finishing.

Norton TUMBLEX abrasives are all immediately available from stock. Order your selection or send sample unfinished parts to our Sample Processing Department. We'll barrel-finish samples with TUMBLEX "S" or with any other Norton TUMBLEX abrasive, if more suitable. Our report will bring you complete details on how to get the best possible results. NORTON COMPANY, General Offices, Worcester 6, Mass. Plants and distributors around the world.

*Trade-Marks Reg. U. S. Pat. Off. and Foreign Countries

NORTON

ABRASIVES

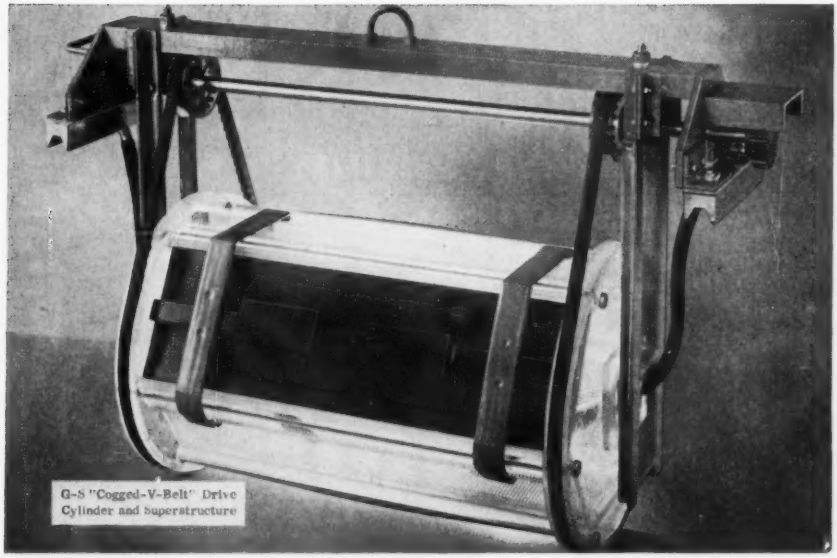
G-398

75 years of... Making better products...to make your products better

NORTON PRODUCTS: Abrasives • Grinding Wheels • Machine Tools • Refractories • Electro-Chemicals

BEHR-MANNING DIVISION: Coated Abrasives • Sharpening Stones • Pressure-Sensitive Tapes

For more data circle 305 on Postpaid Card



G-S "Cogged-V-Belt" Drive Cylinder and Superstructure

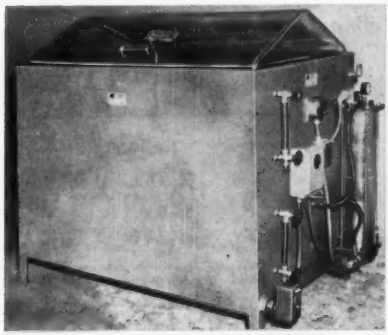
Only G-S

Fits Your Existing Installations!
Offers Inverted-V or Horn-Type Contacts!
Cuts Maintenance, Operations Costs!

Only G-S has the features to cope with the demands of automation, closer tolerance processing, heavier loads, hotter solutions, better, faster plating.

Temperatures to 220°F. Loads to 275 lbs. Heavy-Ribbed, All-Bolted or All-Welded Cylinders. Bussed for more amps. G-S "Cogged-V-Belt" Drive—no gears in solution. Inverted V-Contacts or Horn Type. Floating End Plates — constant contacts. Adjustable Bearings — constant mesh with drive gears. Floating Hubs with Locking-U — direct danglers down — faster disassembly. Heavier Dangler Cables—higher currents. And many more exclusive features.

Switch to G-S: **G-S Replacement Cylinders** to fit all makes of superstructures. **G-S "Cogged-V-Belt" Drive Cylinder-Superstructures** to fit all tanks. **G-S "Cogged-V-Belt" Drive Barrels** with tanks. Also, **Tanks, Liners, Hoods, Motor Drives, Chute Loaders,** etc. **Send for bulletins, prices.**



Test 'em Yourself. Cut Time, Costs

G-S CORROSION TEST CABINETS

• Salt Fog • Acetic Acid • Humidity
• Corrodkote • Cass Tests

Your customers want more tests — up to a piece-per-hour. Answer: **In-plant tests with low-cost G-S Cabinet.** Avoid outside delays, red-tape, high costs. G-S Cabinets for highest accuracy — meet A.S.T.M. and Gov't. Specifications. Lined Steel, Lined Stainless, or "H-T Plexiglas". **Send for details, prices.**

Manufactured by The Singleton Co.

The G. S. Equipment Co.

15573 Brookpark Rd., Cleveland 35, Ohio
Telephone: CLearwater 2-4770

For more data circle 306 on Postpaid Card

ARco offers . . .

ONE RESPONSIBILITY FABRICATIONS

STEEL — STAINLESS — ALUMINUM — ALLOYS
A.S.M.E. CODED VESSELS
PICKLING—PLATING—STORAGE & PROCESSING TANKS
HORIZONTAL - VERTICAL - CYLINDRICAL - RECTANGULAR
TANKS—STACKS—DUCTS—HOODS—COVERS—ROLLS
AIR WASHERS AND FUME SCRUBBERS
COMPLETE MACHINES MADE TO SPECIFICATION

LININGS

ELASTOMERIC LININGS FOR ALL SERVICES APPLIED IN OUR PLANT OR ON THE JOB SITE.

VULCANIZED HARD AND SOFT RUBBERS, NEOPRENE, BUTYL, NITRILE, VITON, HYDALON, KEL-F, AND P.V.C.

COMPOUNDS DEVELOPED FOR SPECIAL SERVICES

DESIGNERS — ENGINEERS MANUFACTURERS
ARCO

AUTOMOTIVE RUBBER COMPANY • INC.
DETROIT • KALAMAZOO • NEW YORK

For more data circle 307 on Postpaid Card

M. L. FORNEY, Publisher
RICHARD S. KLINE, General Manager
EZRA A. BLOUNT, Editor
GERARD H. POLL, JR., Associate Editor
H. LEROY BEAVER, DR. NELSON F. MURPHY } Consulting and Contributing Editors
NORMAN S. ROGERS, Art Editor
K. M. GETTELMAN, Circulation Manager

products finishing

Vol. 24 No. 10 July, 1960

FEATURES IN THIS ISSUE:

37 *Los Angeles Is Ready for Your Visit!* • By Tony Stabile
38 *Program for 47th Annual Convention, American Electroplaters' Society*
38 *—Convention Timetable*
41 *—National Officers*
42 *—Educational Program*
54 *—Metal Finishing Suppliers' Association Program*
56 *National Association of Metal Finishers Convention Program*
60 *Accent on Corrosion-Proofing*
66 *Current Practice in Plating Zinc Die Castings* • An interview with W. H. Safranek
72 *Chemical Milling at Work* • By Lew B. Stearns
84 *New Complete Finishing System*
92 *Fast-Dry Paint Speeds Car Refinishing*

6 *Advertising Representatives*

DEPARTMENTS:

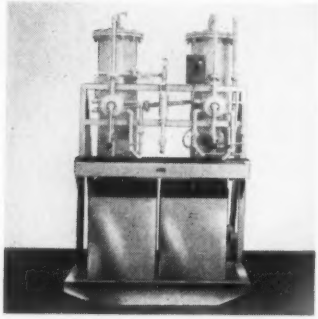
82 *Finishing Clinic*
96 *New Equipment, Materials, Processes*
146 *Metals Memos*
147 *New Books*
149 *Free Literature*
157 *Classified Advertising: Positions Available; Used Machinery; Professional Cards; Services*
158 *News of the Finishing Industry*
173 *Meetings of Interest to Finishers*
174 *The Finishing Touch*
176 *July Advertisers' Index*

Member
BPA
Metal Finishing Suppliers Association Inc

contents

Published monthly with two issues in March and copyrighted 1960 by Gardner Publications, Inc., 431 Main St., Cincinnati, Ohio. Printed in U.S.A.

STOP SPOTS AND STAINS USE BARNSTEAD LOW COST DEMINERALIZED WATER



Whatever your plating or finishing operations... Barnstead Demineralizers can help you finish your products faster, cheaper, and with fewer rejects . . . because Barnstead Demineralized Water stops spots and stains . . . eliminates need of polishing and buffing.

You save on initial cost since Barnstead can provide the exact Mixed-Bed, Two-Bed, or Four-Bed model to fill your particular requirements, with production flows up to 2500 G.P.H. and costing as little as 5c per thousand gallons. Recirculation for even greater economy.

New Demineralizer Catalog 160
Describes Barnstead's Complete
Line — Write for your copy.

Barnstead
STILL AND STERILIZER CO.
12 Lanesville Terrace, Boston 31, Mass.

For more data circle 308 on Postpaid Card

products finishing

advertising representatives

Duncan W. Barton, 60 East 42nd St., New York 17, N. Y., Murray Hill 7-7390. Eastern Pennsylvania, central New York State, New Jersey, Maryland, Delaware, Washington, D. C., Long Island, Brooklyn, New York City, Staten Island.

Granville M. Fillmore, *Vice President,* 60 East 42nd St., New York 17, N. Y., Murray Hill 7-7390. Eastern New York State, Connecticut, Massachusetts, Rhode Island, Vermont, New Hampshire, Maine.

George E. Hay, 431 Main Street, Cincinnati 2, Ohio, CHerry 1-5924. Western Pennsylvania, western New York, Ohio, Kentucky, southern Indiana.

John M. Krings, *Vice President,* Room 211-A, 540 N. Michigan Ave., Chicago 11, Ill., DElaware 7-5441. Western Michigan, Illinois, Wisconsin, Iowa, Minnesota, the Dakotas, northern Indiana.

Jeryl L. Marlatt, 1051 Brooklawn Rd., Birmingham, Michigan, MIdwest 6-5935. Eastern Michigan, northwestern Ohio.

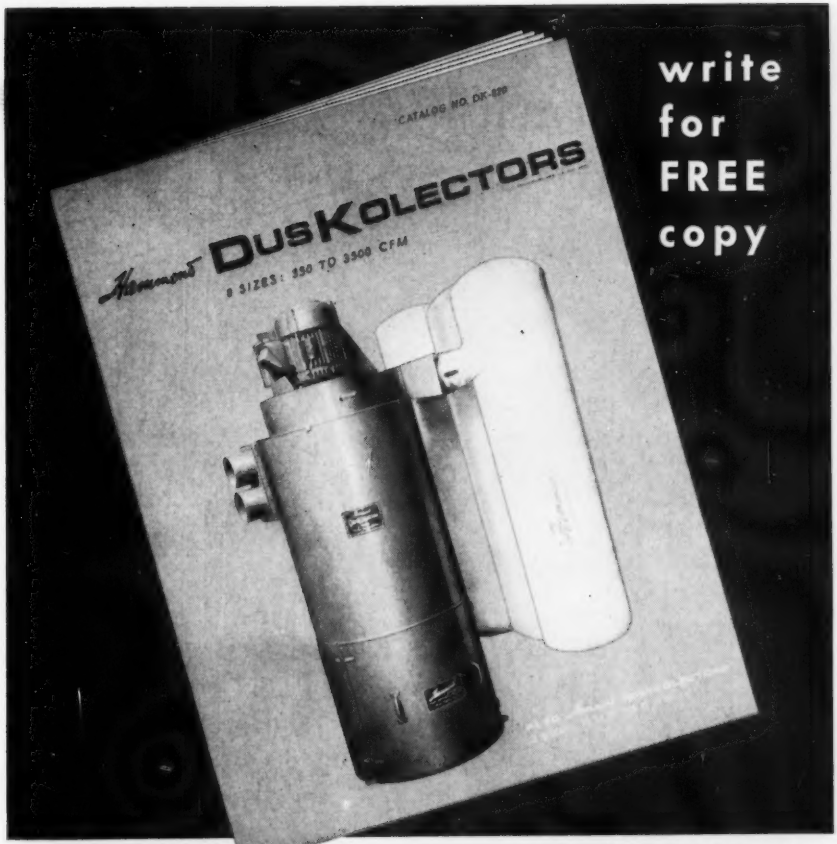
Norman S. Rogers, 431 Main Street, Cincinnati 2, Ohio, CHerry 1-5924. Central Indiana.

Gene J. Schwarber, *Advertising Manager,* 431 Main Street, Cincinnati 2, Ohio, CHerry 1-5924. Missouri, Kansas.

The Robert W. Walker Company, 730 S. Western Ave., Los Angeles 5, Calif., DUnkirk 7-4388; 57 Post St., San Francisco 4, Calif., SUtter 1-5568. California, Oregon, Washington.

★ ★ ★

Circulation over 23,000— largest in the finishing field



new

"HOW-TO-DO-IT" CATALOG ON DUST AND MIST COLLECTING

Includes application suggestions, installation views, cut-away diagrams, dimensions . . . A wealth of practical guidance for DUST CONTROL which will improve working conditions and cut maintenance costs in your plant.

Hammond of Kalamazoo Good Machinery Since '87

Hammond Machinery Builders INC.

1622 Douglas Ave. Kalamazoo, Mich.

For more data circle 309 on Postpaid Card

Product: 99.75+% Pure
Service: 100% Sure

Every batch checked. Every can filled with a full weight of extra high quality 99.75+% Chromic Acid. Prompt delivery from ample factory and nearby distributor stocks. Why not order BFC Chromic Acid next time?

BETTER FINISHES & COATINGS, INC.

268 Doremus Ave., Newark 5, N. J. • 2014 E. 15th St., Los Angeles 21, Calif.

BFC · PAINTS · PLASTICS · CHEMICALS

For more data circle 310 on Postpaid Card

Because...		
	SYNFLEX is lighter	**SYNFLEX** is economical
SYNFLEX is flexible	**SYNFLEX** gives smooth flow	**SYNFLEX** has closer tolerances
SYNFLEX avoids operator error	**SYNFLEX** is translucent	**SYNFLEX** is impervious to solvents
SYNFLEX for hot or cold spraying	**SYNFLEX** simplifies cleanup	**SYNFLEX** has high strength
SYNFLEX resists abrasion	**SYNFLEX** comes in 500′ reels	**SYNFLEX** handles all finishes

SYNFLEX UNIVERSAL PAINT SPRAY HOSE

is distributed through

FOR TOTAL SERVICE, CALL
DEVILBISS

A-2389A

Call your local DeVilbiss representative for all your paint spray hose needs.

SYNFLEX®
Products Div.
Samuel Moore & Co.
Mantua, Ohio

For more data circle 311 on Postpaid Card

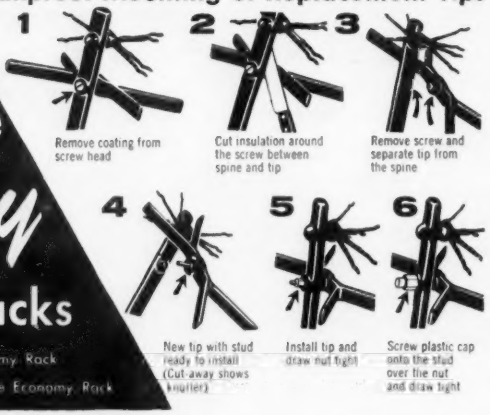
New Heavy Duty Convertible Economy Plating Racks

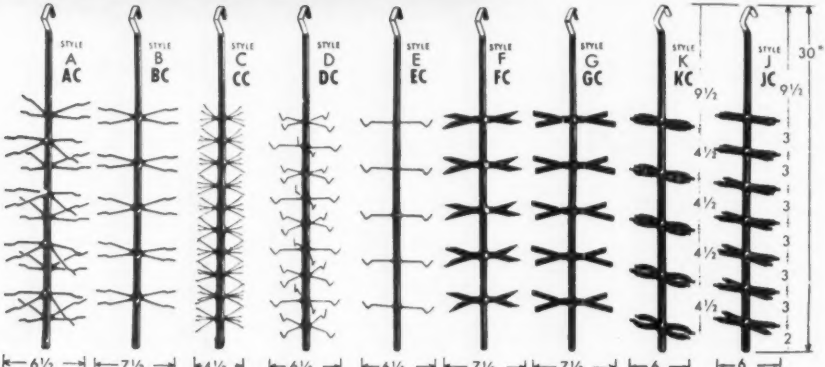
from fixed tip to replaceable tip

One letter designates Non-convertible Economy Rack

Suffix "C" designates Heavy Duty Convertible Economy Rack

Leakproof Mounting of Replacement Tips


1
Remove coating from screw head
2
Cut insulation around the screw between spine and tip
3
Remove screw and separate tip from the spine
4
New tip with stud ready to install (Cut-away shows knurler)
5
Install tip and draw nut tight
6
Screw plastic cap onto the stud over the nut and draw tight



	A	B	C	D	E	F	G	K	J
①	$5.78	$4.77	$6.00	$5.83	$4.42	$5.84	$5.69	$5.75	$6.50
②	**AC 6.95**	**BC 5.77**	**CC 7.35**	**DC 6.95**	**EC 5.20**	**FC 6.95**	**GC 6.95**	**KC 6.95**	**JC 7.85**

① Cat. No. and Prices of Non-Convertible Economy Racks.

② Cat. No. and Prices of New, Heavy Duty, Convertible Economy Racks.

*36 inch lengths also available.

All prices F. O. B. Chicago, subject to change without notice.

Add $1.50 packing charge on orders for less than 12 racks.

No variations at these prices except in mass production quantities.

Developed in response to widespread demand for Economy Racks that could be kept at 100% capacity through endless years of use. These NEW Convertible Economy racks have special rivited tip assembly that is easily removed for replacement with pre-insulated, self-sealing THINKER BOY Tips.

The Convertible Economy Rack Spines are 25% heavier. Quality construction—mass production economies make possible the low prices.

Belke MANUFACTURING COMPANY
947 N. Cicero Ave., Chicago 51, Ill.
EVERYTHING FOR PLATING PLANTS

For more data circle 312 on Postpaid Card

Ambient

ambient AMBIENT Ambient Ambient Ambient

A New Word FOR BETTER PHOSPHATE COATING

ambi

Am'bi-ent temperature The temperature of the medium surrounding an object: as for example, the air temperature in a building.

More Efficient — More Economical

Ambient

Exhaustive field tests have proved beyond question that ambient temperature phosphate coating processes are the most efficient and provide measurable cost savings in heat and chemicals.

The operating conditions of ambient temperature phosphate coatings are natural. They require no artificial cooling or heating to maintain baths at natural temperatures. And most important, *there is no sacrifice of quality* since a remarkable ease of control can be maintained with this system.

We would like to explain the advantages of our ambient temperature process in detail. Your Detrex field engineer is fully qualified to answer your questions. Write to:

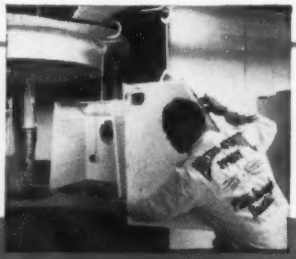
DETREX CHEMICAL INDUSTRIES, INC.

P. O. Box 501, Dept. PF-760, Detroit 32, Michigan

For more data circle 313 on Postpaid Card

Westinghouse

to improve beauty and performance



"We've proved to our complete
new thermo-setting acrylic enamel
hardness and improved resistance

PITTSBURGH INDUSTRIAL FINISHES

PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS • FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

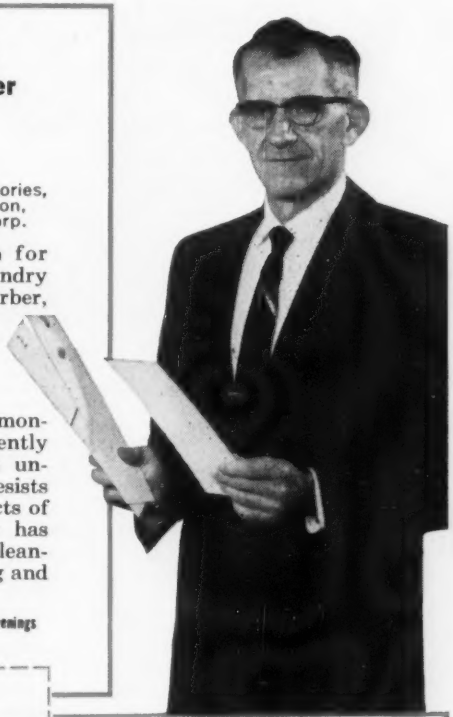
IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

USES DURACRON®

of automatic washers and dryers

satisfaction that Pittsburgh's gives better adhesion, greater to staining and corrosion" . . . says H. L. Farber,

Manager, Control Laboratories, Electric Appliances Division, Westinghouse Electric Corp.



• **"In our continuing research** for better finishes to use on our laundry equipment," continues Mr. Farber, "we have found that this thermo-setting enamel provides a number of important quality improvements.

• **"Practical experience** has demonstrated that it adheres excellently to metals and primers. It is unusually hard and tough, resists marring and the corrosive effects of chemicals and detergents. It has excellent initial whiteness and cleanability, and withstands staining and discoloration."

Watch the Garry Moore Show—CBS-TV—Tuesday Evenings

DURACRON can be used advantageously on many other products. We'll be glad to provide detailed information. Mail coupon at right for free booklet.

Pittsburgh Plate Glass Company, Industrial Finishes Division, 1 Gateway Center, Pittsburgh, Pa.

Gentlemen: Please send me copy of your free booklet on new DURACRON Acrylic Enamel.

Name_____

Address_____

City_____ County_____ State_____

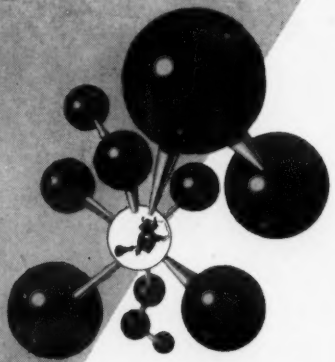
Name of Company_____

For more data circle 314 on Postpaid Card

"ACTIVATED"

BLACK MAGIC

(Pat. Pending) ®



An Innovation in BLACK OXIDE PROCESSING

Here is another "Successful First" in the black oxide finishing field, from the research and development laboratories of Mitchell-Bradford. This outstanding black oxide process for steel has been thoroughly tested and proven for the past several months and is now being used by a large number of manufacturers and commercial applicators. It is performing above our highest expectations.

"Activated" BLACK MAGIC is a new approach to a black oxide process because of its constant, automatic, self-regenerating, decontaminating, catalytic action along with other vitally important and unusual characteristics. "Activated" BLACK MAGIC contains entirely new concepts of activators, catalysts, penetrants and rectifiers. This produces the following outstanding advantageous results in operation, processing and final resultant black finish.

When you use "Activated" Black Magic you get the following advantages:

- Incorporation of the newest available products of chemical research in activators, catalysts, penetrants, inhibitors, and rectifiers.
- More Corrosion and Abrasion Resistance.
- Shorter Blackening Cycles — More Uniform Finish.
- Latest and Unique Method of Self-Rectification.
- Hardened (heat-treated) parts blackened more easily and uniformly.
- Single Bath — One Chemically Balanced Salt.
- Low Operating Temperature — Lower Cost of Operation.
- Meets or Surpasses all Military, Aeronautical or Civilian specifications.

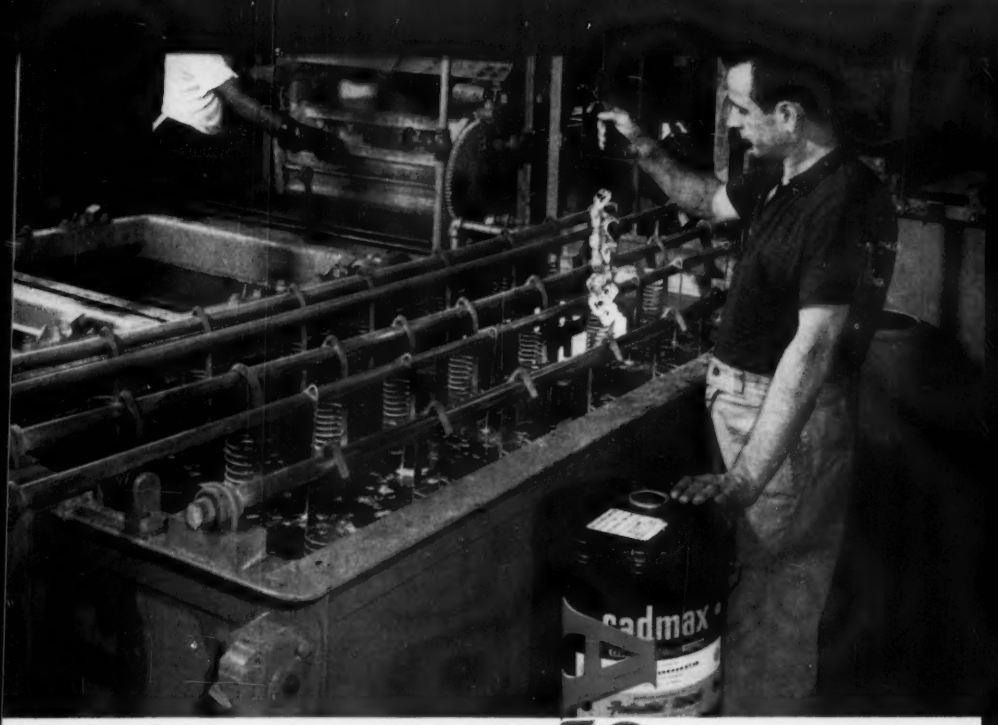
Mitchell-Bradford

THE MITCHELL-BRADFORD CHEMICAL CO.

Wampus Lane Milford, Conn.

QUALITY PRODUCTS OF CHEMICAL RESEARCH

For more data circle 315 on Postpaid Card



Competitively proven!

FEDERATED PLATING ANODES, BRIGHTENERS, NICKEL SALTS

You can guarantee consistent high grade results with Federated plating materials, developed, perfected, and competitively tested and proven. In addition to standard brass, cadmium, copper, lead, nickel, tin, tin-lead, and zinc anodes, there are new **Asarcomax** copper anodes and triple-life Conducta-Core lead anodes. **Cadmax** (cadmium), **Zimax** (zinc), **Levelmax** and **Nimax** (nickel), brighteners have set industry standards for performance. Federated nickel salts are of the highest purity and uniformity. Write or call for full information to Federated Metals Division, American Smelting and Refining Company, New York 5, RE 2-9500, or call our nearest sales office, or get in touch with your nearby Federated Plating Materials Distributor.

ASARCO

AMERICAN SMELTING AND REFINING COMPANY

FEDERATED METALS DIVISION

Where to call for information:

ALTON, ILLINOIS
Alton: Howard 5-2511
St. Louis: Jackson 4-4040

BALTIMORE, MARYLAND
Orleans 5-2400

BIRMINGHAM, ALA.
Fairfax 2-1802

BOSTON 16, MASS.
Liberty 2-0797

CHICAGO, ILL. (WHITING)
Chicago: Essex 5-5000
Whiting: Whiting 826

CINCINNATI, OHIO
Cherry 1-1678

CLEVELAND, OHIO
Prospect 1-2175

DALLAS, TEXAS
Adams 5-5034

DETROIT 2, MICHIGAN
Trinity 1-5040

EL PASO, TEXAS
(Asarco Mercantile Co.)
3-1852

HOUSTON 29, TEXAS
Orchard 4-7611

LOS ANGELES 23, CALIF.
Angelus 8-4291

MILWAUKEE 10, WIS.
Hilltop 5-7430

MINNEAPOLIS, MINN.
Tuxedo 1-4109

NEWARK, NEW JERSEY
Newark: Mitchell 3-0500
New York: Digby 4-9460

PHILADELPHIA 3, PENNA.
Locust 7-5129

PITTSBURGH 24, PENNA.
Museum 2-2410

PORTLAND 9, OREGON
Capitol 7-1404

ROCHESTER 4, NEW YORK
Locust 5250

ST. LOUIS, MISSOURI
Jackson 4-4040

SALT LAKE CITY 1, UTAH
Empire 4-3601

SAN FRANCISCO 24, CALIF.
Atwater 2-3340

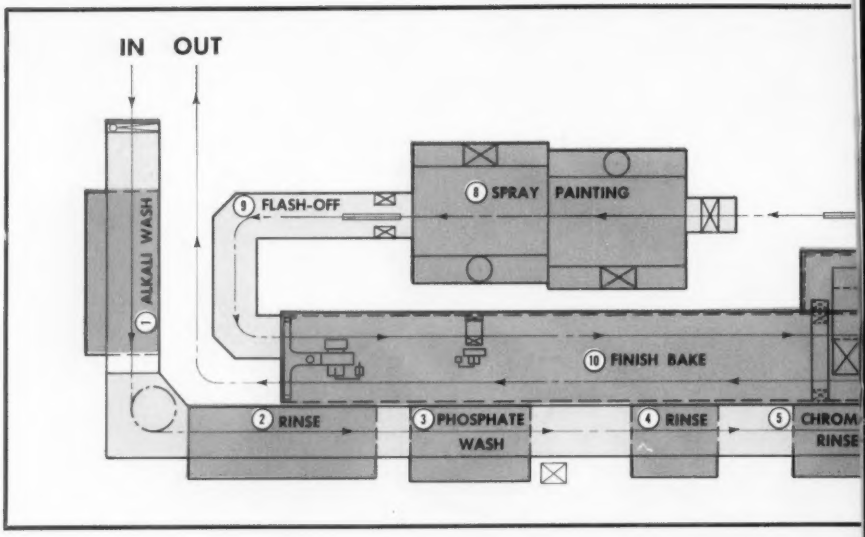
SEATTLE 4, WASHINGTON
Main 3-7160

WHITING, IND. (CHICAGO)
Whiting: Whiting 826
Chicago: Essex 5-5000

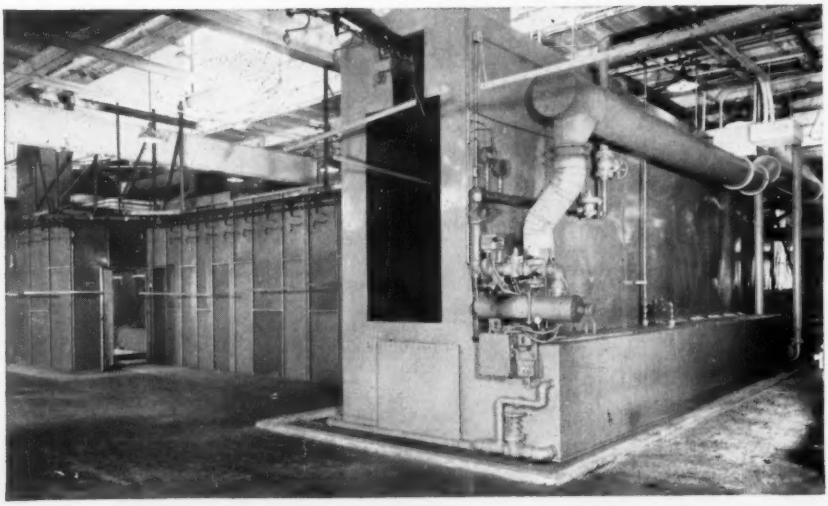
IN CANADA: Federated Metals Canada, Ltd.
Toronto, Ont., 1110 Birchmount Rd., Scarborough. Phone: Plymouth 73246

Montreal, P.Q., 1400 Norman St., Lachine. Phone: Melrose 7-3591

For more data circle 316 on Postpaid Card

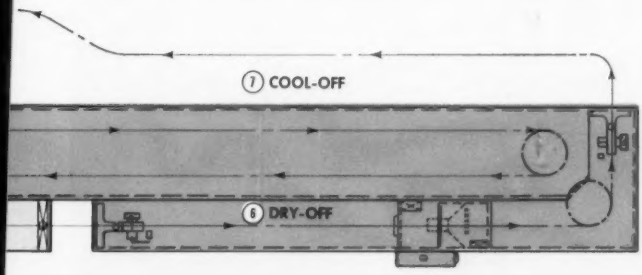


New DeVilbiss 10-stage finishing



Entrance to five-stage phosphatizing machine; spray booth at left

In five-stage DeVilbiss phosphatizing unit, work flows through high-pressure jets of hot cleaning compound, phosphate wash, intermediate hot rinses. Final chromic rinse is force-dried on the metal. After cool-off work travels into two water-wash spray booths where each side of metal is sprayed individually. Hot spray provides greater film build in single coat. Painted pieces move into pressurized tunnel for flash-off before finish bake. Oven has adjustable heat outlets to precisely balance temperatures, eliminate hot and cold spots, produce uniform baking.



system *goes to work for Globe-Wernicke*

The City Auto Stamping Division of Globe-Wernicke Industries, Inc. is a leader of mass-produced, large metal stampings. Faced with the need to expand facilities to handle more diversified production, executives and engineers of DeVilbiss and City Auto met in a series of conferences to develop a finishing system of unusual versatility.

The result: a complete 10-stage continuous metal preparation, painting and drying system with the size and capacity to handle large body panels, fenders, doors, etc. for the automotive industry—plus the flexibility needed for a broad range of smaller stampings City Auto furnishes to other durable goods manufacturers.

Whether your finishing operation must meet complex requirements, like City Auto Stamping's, or the short-run manual processing needs of a one-man paint department, take advantage of *total service!* The DeVilbiss Company, Toledo 1, Ohio. Also Barrie, Ont.; London, Eng.; São Paulo, Brazil. Offices in principal cities.

FOR TOTAL SERVICE, CALL
DEVILBISS

For more data circle 317 on Postpaid Card

Use them with any blast equipment...

GLAS-SHOT® CLEANS METAL LIKE CRAZY

Titanium jet engine spacer before cleaning

Glas-shot produces bright, clean surface

If your operation involves metal cleaning, we firmly believe you'll be impressed with the results you can achieve with Glas-shot.

Glas-shot is special microscopic glass beads for use with all types of wet or dry blast equipment. Glas-shot can produce a metallurgically pure surface on any metal . . . faster . . . regardless of the foreign matter or contaminants requiring removal. Uniformly spherical in shape, it removes no base metal, leaves no imbedment . . . is equally effective in treating both internal and external surfaces.

The capabilities of Glas-shot are almost inexhaustible, ranging far beyond cleaning, alone. Samples and the new brochure, "The Story of Glas-shot", are yours for the asking. Drop a request in the mail today.

Microscopic Glass Beads for Industrial and Reflective Purposes

MICROBEADS, INC.

P.O. BOX 241 • JACKSON, MISSISSIPPI

Canadian Licensee:

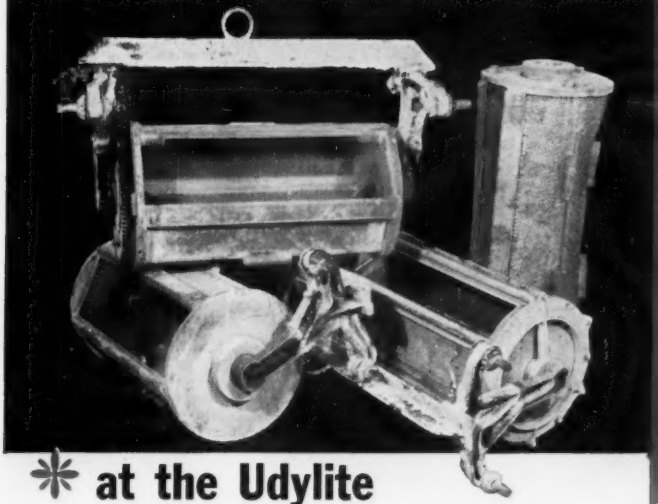
CATAPHOTE/CANADA LTD.

P.O. Box 727, Brantford, Ontario

BL-160

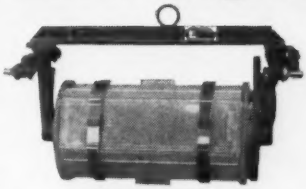
For more data circle 318 on Postpaid Card

✳ Look! before you junk



✳ at the Udylite Project Alert Barrel Program

Hundreds of barrel units have already passed through our Project Alert lines. Every job from the simplest repair to complete renovation has meant equipment salvaged—its useful life extended and real cash savings for plating operators everywhere.



Through Project Alert, barrels in *any* condition are renovated and returned to the line. The program is flexible . . . it provides the exact restoration necessary to put each crippled unit back into productive use. It works! . . . it has proven a valuable economy for hundreds of satisfied Udylite customers.

Get "extra mileage" from your tired, worn out barrel equipment. Ask your Udylite man now or contact Lee Morningstar at Udylite today.

***Lee Morningstar* who personally supervises every single Project Alert Barrel order.**

PROJECT ALERT

world's largest plating supplier

udylite

the udylite corporation

detroit 11, michigan

on the west coast: L. H. Butcher Co.

For more data circle 319 on Postpaid Card

Pee Cee tape & label co.

521 NORTH LA BREA · LOS ANGELES 36, CALIF.

NAME_____

COMPANY_____

ADDRESS_____

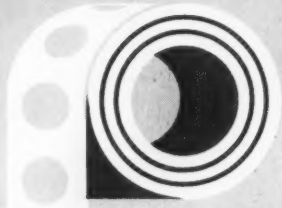
CITY_____ ZONE____ STATE_____

☐ I am sending you a sketch of pre-cut masks we need.
Send quotes and sample to test. I will note special temperature or surface problem.

☐ Please send me a quote on the attached masks I am already using in_____quantity.

☐ Send me information on pre-cut mask stock sizes.
Send me samples of ☐ Decals ☐ Corner protectors ☐ Nameplates

C-4



erfect pre-cut masks can save you hours per day!

If you are using tape in any of your masking operations... especially on circles or irregular shapes... save money and hours with PeeCee's perfectly pre-cut masking discs and odd shapes, put up on easy to handle rolls for faster application. PeeCee masks offer these advantages: 1–Leave no residue... even under extreme conditions. 2–Have no distortion. 3–Allow no seepage. 4–Are stocked in three plants for immediate delivery. PeeCee specializes in pressure sensitive tapes and labels for the product finishing industry... for surprising money-saving ideas, send in coupon above or call one of our plants* or sales offices near you for immediate attention and **fastest** delivery.

hundreds of different stock shapes

Narrow line masking tape too! Precision slit to .005 tolerance

•

PeeCee's famous corner protectors carefully cushion fragile skins.

Pee Cee tape & label co.

*NEW YORK (DUMONT, NEW JERSEY)
105 W. Shore Ave., DUmont 5-4200
CHICAGO
3116 West Devon, BRiargate 4-1973
*ST. LOUIS
1455 Page Industrial, HArrison 9-7700
DALLAS
318 North Pearl St., Riverside 7-8550
SAN FRANCISCO
26 O'Farrell, Suite 306, SUtter 1-6923
*LOS ANGELES
521 N. La Brea Ave., WEbster 8-2134

A DIVISION OF EUREKA SPECIALTY PRINTING CO., SCRANTON, PA.

For more data circle 320 on Postpaid Card

YOU CAN MAKE RICHER LOOKING

ANTIQUE FINISHES

WITH

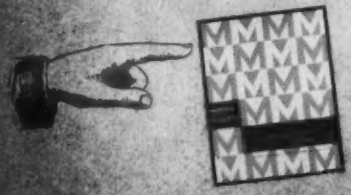
Nacromer®

SYNTHETIC PEARL ESSENCE

By applying a clear vehicle containing Nacromer over the colored base coat, you add an entirely new dimension to enrich the character of your antique finish—new softness . . . unusual depth. Or, Nacromer may be applied with colored lacquers to intensify the sharpness of the color.

Translucent Nacromer enhances standard finishes with a pearlescent lustre of unusual depth and softness. It can be used with practically all types of coating vehicles—by any of the usual coating methods—for application to wood, metal, plastic, leather, and other materials.

With just a little "trial and error" experimentation, you'll find the Nacromer coating just right for you. Why not try it?



FREE 8-PAGE HANDBOOK

Our new 8-page Nacreous Pigment Handbook and 4-page "Coating with Nacreous Pigments" brochure contain much valuable information on the use of Nacromer. Write for your copies today.

THE MEARL CORPORATION, 41 East 42nd Street • New York 17, N. Y.

world's leading producers of pearl essence

For more data circle 321 on Postpaid Card

CLEANING VERSATILITY by Cincinnati

Combines

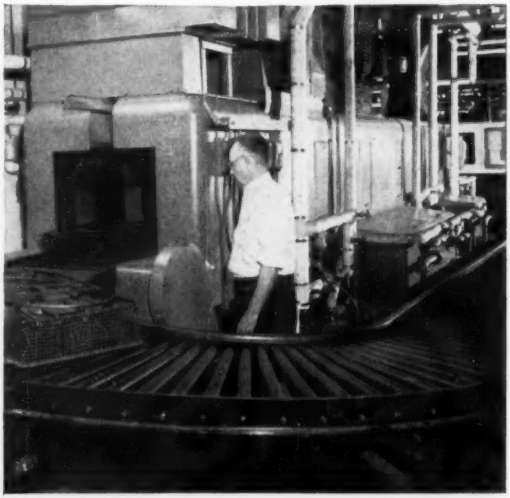
Belt Conveyor and Monorail Conveyor

- Washes
- Rinses
- Rust Proofs
- Dries

Processes

- Steel
- Cast Iron
- Brass
- Aluminum
- Stainless
- Stampings
- Castings
- Screw Machine Parts
- Die Castings
- Machined Parts
- Forged Parts

In many cases, Cincinnati engineers are called upon to design equipment to clean one particular part. In others, they have to come up with a machine that will clean anything in the plant . . . present and future! Installed in the New York State division plant of a noted American manufacturer, the machine illustrated is such a "jack of all trades". It handles all pre-finishing, pre-inspection and pre-assembly cleaning for the complete plant. It's another example of Cincinnati's ability to engineer equipment to a problem and to a budget, too.



What's your problem? Ask for a no-cost, no-obligation survey of cleaning requirements by: **Cincinnati Cleaning & Finishing Machinery Co., 2008 Hageman St., Cincinnati 41, Ohio**

For more data circle 322 on Postpaid Card

Used Throughout the Plating Industry

Developed and Manufactured by Experienced Platers

MICCROSOL . . .
Today's outstanding heat-cured rack coating that provides positive insulation and protection, amazing tensile strength and scuff resistance, permanent flexibility, and positive, continuous adhesion.

MICCROTAPE . . .
An extruded tape that offers unexcelled protection for plating racks, and for masking parts prior to selective plating.

MICCROTUBE . . .
An extruded tubing especially suited for use on straight or bent contact wires, and for selective plating of simple parts.

MICCROTEX . . .
A synthetic air-dry rack coating for all plating cycles and phosphate coatings—highly resistant to all plating solutions.

MICCROSTOP . . .
For masking of machined parts for all plating cycles. Hairline demarcation . . . extreme accuracy.

MICCROMASK . . .
For masking of machined parts for hard chromium plating. Provides complete protection—assures extreme accuracy.

MICCROPEEL . . .
Specifically designed to supply the need for a stop-off lacquer that can be peeled easily from the part after plating, and will hold a hairline demarcation through all plating cycles.

MICCROWAX . . .
Two widely used waxes for selective stop-off, especially suited for masking on complicated parts and sharp edges. C-562 for hard chromium, C-600 for high-temperature cycles.

MICCROPATCH . . .
High-solids, air-dry, patching material for heavy build-up in repairing racks, tanks, etc.

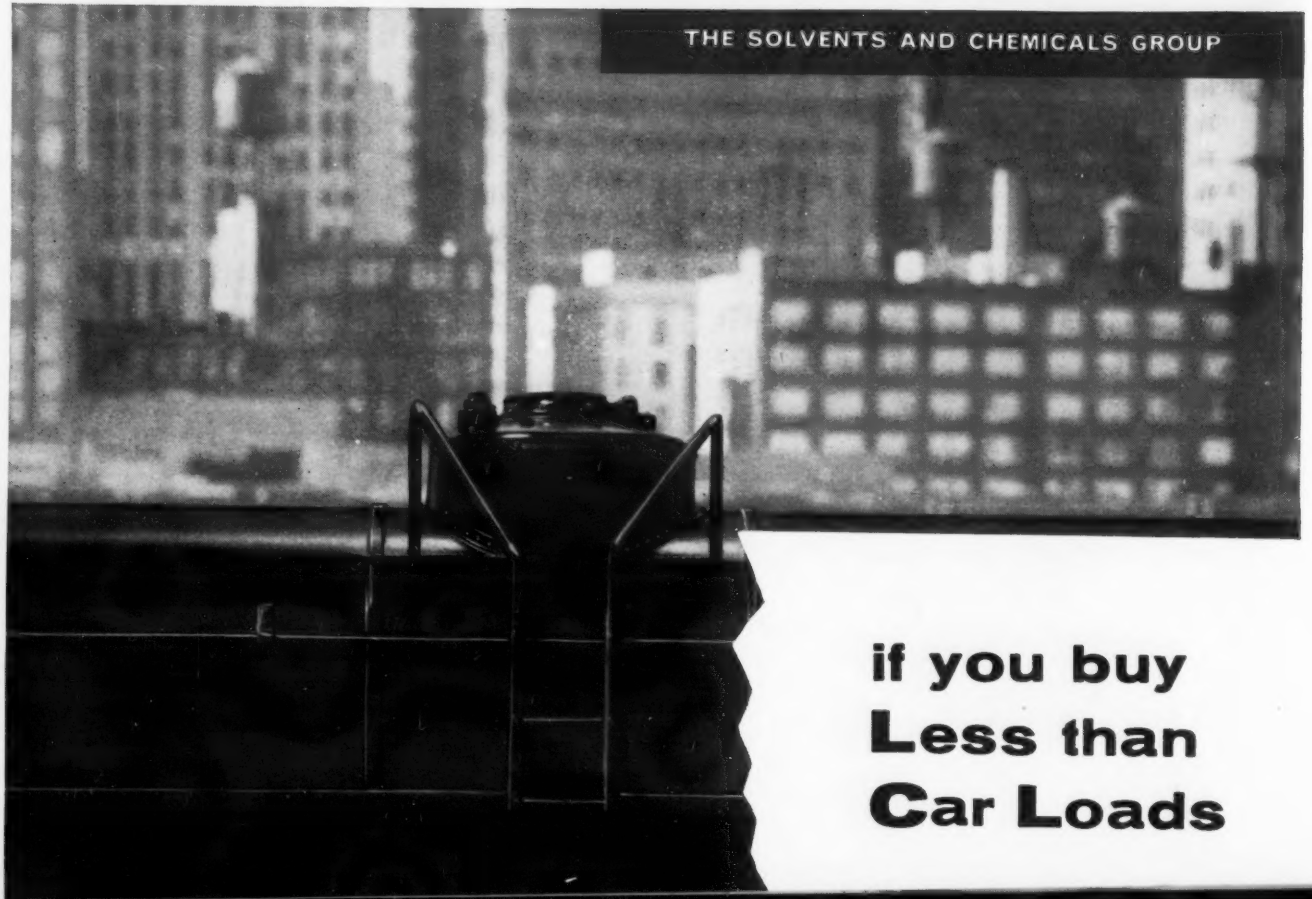
MICCROLOID . . .
Industrial corrosive-resistant coating for use on all plating equipment, rinse tanks, structural steel, walls, floors, pipe lines, air ducts, etc.

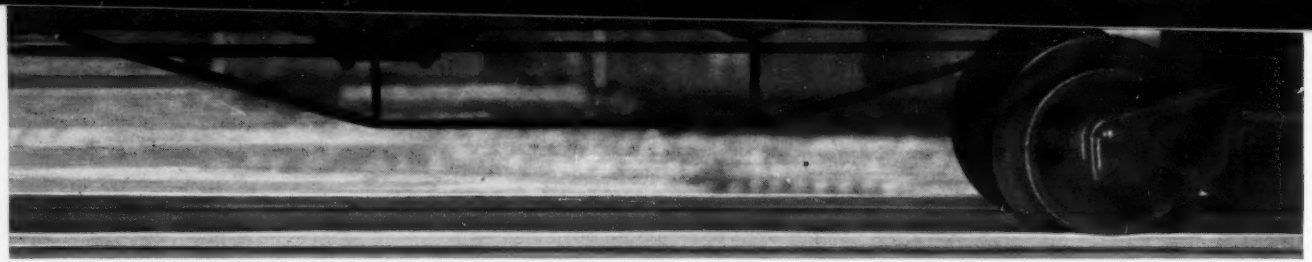
Samples and descriptive literature of all Miccro Products will be sent upon request.

MICHIGAN CHROME AND CHEMICAL COMPANY

8615 Grinnell Ave. • Detroit 13, Mich.

For more data circle 323 on Postpaid Card


THE SOLVENTS AND CHEMICALS GROUP
if you buy
Less than
Car Loads



. . . you need an organization designed to service the particular needs of the LCL buyer! And the Solvents and Chemicals Group, embracing 21 plants and stock points in 21 cities, is geared to perform these services regardless of the size of your order. Our modern truck fleet including compartmented transports . . . well trained sales-service staff. . . and ample, on-the-spot warehousing facilities meet your every delivery requirement—eliminate many worrisome details of production planning and procurement. The most reliable source for rigidly controlled quality chemicals from the nation's leading producers is your local Solvents and Chemicals Group plant. Here is an organization of specialists who can help assure *your* firm of continued growth in the months ahead!

Aliphatic Petroleum Naphthas, Alcohols and Acetates, Alkanolamines, Aluminum Pigments, Petroleum and Coal Tar Aromatic Solvents, Chlorinated Paraffins, Chlorinated Solvents, Glycerine, Glycols and Glycol Ethers, Ketones and Esters, Plasticizers, Resinates, Rosins, Synthetic Resins, Terpene Solvents, Waxes.

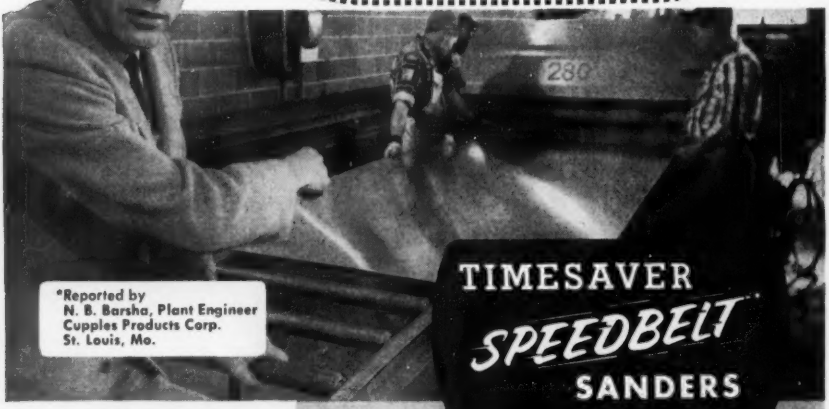
Solvents Chemicals Group Member

THE SOLVENTS AND CHEMICALS GROUP, 2540 W. FLOURNOY STREET, CHICAGO 12, ILLINOIS

Buffalo, Bedford 1572 • Chicago, SEeley 3-0505 • Cincinnati, ELmhurst 1-4700 • Cleveland, CLearwater 2-1100
Dallas, FEderal 1-5428 • Detroit, WAlnut 1-6350 • Erie, GLendale 6-3951 • Fort Wayne, Anthony 0213
Grand Rapids, CHerry 5-9111 • Houston, ORchard 2-6683 • Indianapolis, MElrose 8-1361 • Kansas City, CHestnut 1-3223
LaCrosse, 2-3011 • Louisville, EMerson 8-5828 • Milwaukee, GReenfield 6-2630 • New Orleans, VErnon 3-4666
Rochester, LOcust 2-5980 • St. Louis, GArfield 1-3495 • Santa Fe Springs (Los Angeles), UNiversity 4-7711 or SPruce 3-3628
Toledo, JEfferson 6-3771 • Windsor, Ontario, CLearwater 2-0933

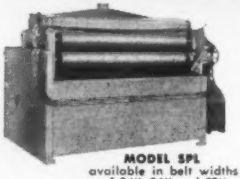
For more data circle 324 on Postpaid Card

"Only machine capable of handling our rugged and precision sanding requirements on large aluminum panels"*



*Reported by
N. B. Barsha, Plant Engineer
Cupples Products Corp.
St. Louis, Mo.

TIMESAVER
SPEEDBELT
SANDERS



MODEL SPL
available in belt widths of 24", 36" and 50"
Sanding action is for underside of work.

MODEL TOP
available in belt widths of 24", 36", 50" and 54"
Sanding action is overhead.

"We were faced with the problem of sanding 1000 vertical aluminum panels, 28'x24"x3/16" for the exterior of the new U. S. Air Force Academy buildings. These panels required finishing to a uniform and precision surface specification. Before we purchased the Timesaver Model TOP-50, we thoroughly investigated the market for sanding machines of this type. The Timesaver "Speedbelt" was the only unit which possessed the durability, accuracy and rugged construction necessary for our requirements."

The Cupples Products Corporation's experience is typical of Timesaver "Speedbelt" Installations throughout the country . . . where performance and need to achieve production and cut costs is important. They can do all flat metal surface finishing, polishing and sanding formerly assigned to other methods . . . and do them better. What's more, savings made in labor, materials and maintenance soon pay for their low initial cost.

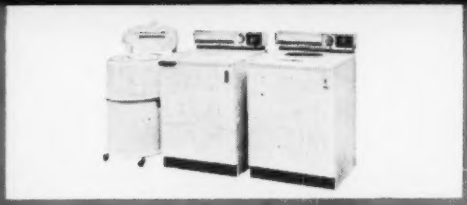
Investigate the advantages of Timesaver Sanders for your plant, write for literature and information today.

TIMESAVER SANDERS
DEPT. Q-24
P.O. Box 7446, Robbinsdale Station • Minneapolis 22, Minn.
Pioneers in Wide Belt Sanding for the Woodworking Industry
For more data circle 326 on Postpaid Card

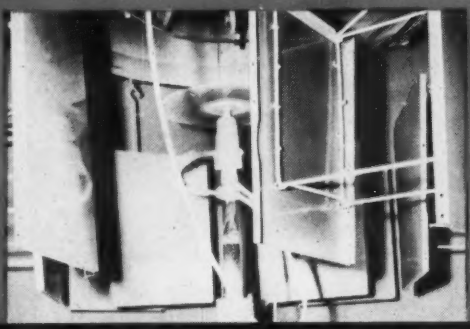
KELVINATOR

Washers and Dryers . . .

RANSBURG



Get their High Quality Finish with



RANSBURG NO. 2 PROCESS

Kelvinator Division of American Motors switched from hand spray to RANSBURG No. 2 PROCESS Electro-Spray to meet increased production schedules . . . improve the quality of the finish . . . . and lower finishing costs.

SAVINGS EXCEEDED EXPECTATIONS

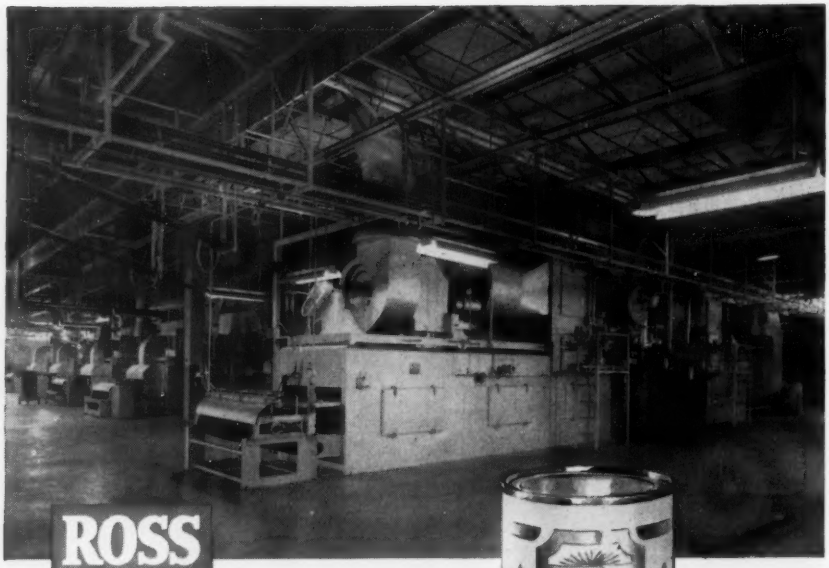
Demonstration tests in the Ransburg labs indicated substantial savings in finishing costs, but in actual production, SAVINGS ARE EVEN GREATER than estimated. That's why Kelvinator is now considering RANSBURG Electrostatic Spray Painting for other products of their "white goods" line: Refrigerators . . . Home Freezers . . . Ice Cream Cabinets . . . Electric Ranges, as well as some components.

NO REASON WHY YOU CAN'T DO IT, TOO!

Want to know how Ransburg No. 2 Process can improve the quality of YOUR painted products, and at the same time, cut YOUR paint and labor costs? Write for our No. 2 Process brochure. Or, if your production doesn't justify automatic painting, let us tell you about the new No. 2 Process Electrostatic Hand Gun which can be used in either conveyorized, or non-conveyorized painting.

RANSBURG
Electro-Coating Corp.
Box-23122, Indianapolis 23, Indiana

For more data circle 327 on Postpaid Card



ROSS
Air Systems

... Engineered Atmospheres for Better Processing

Beer and Beverage Can OVEN—1960 Model

Installed in late 1959, this conveyorized Ross Oven is in full production baking the inner linings of beer and beverage cans at the rate of 1000 cans per minute.

One of several basic types, this particular automatic unit was designed to fit the special production needs of Continental Can Company at one of its modern plants. Over the years, Ross Engineers have designed and installed over 100 beer and beverage can baking ovens in the major can manufacturing plants throughout the United States. Many of the earlier units are still in full and, in many cases, excess production, implying both sound design engineering and sturdiness of construction.

MR

J.O. ROSS ENGINEERING

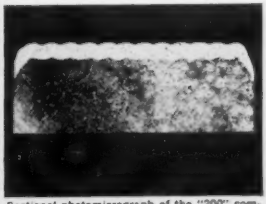
A Division of Midland-Ross Corporation/730 Third Ave., New York 17, New York

ATLANTA • BOSTON • DETROIT • LOS ANGELES • SEATTLE • MT. PROSPECT, ILL.

For more data circle 328 on Postpaid Card

Skilled plater lowers an electrode with Perfect Circle piston rings into a bath of Mutual® Chromic Acid.

Photo shows the Perfect Circle "200" chrome top compression ring (L) and "98" self expanding oil ring (R). The face of the compression ring and the steel rails of the oil ring are plated with solid chrome .004"-.007" thick.



Sectional photomicrograph of the "200" compression ring shows interrupted surface and thick plating of chrome.

FOR PRECISION CHROME PLATING PERFECT CIRCLE USES MUTUAL CHROMIC ACID

Perfection is the goal in producing piston rings. Each is machine tooled to exacting specifications and the chrome plating must be flawless. To safeguard against plating difficulties . . . and expensive rejects . . . Perfect Circle Corporation relies on Mutual Chromic Acid. Like many experienced platers, Perfect Circle knows that careful control, plating skill plus Mutual Chromic Acid add up to a top quality chrome finish.

Mutual Chromic Acid is always 99.75% pure—or better. Sulfate content never exceeds 0.1%. Rigid quality control by Mutual insures that the chromic acid you get is always the same. This makes it easier for you to control accurately the acid-sulfate ratio of your plating bath.

To obtain further information about these and other advantages of Mutual Chromic Acid, send coupon for our free booklet, "Chromium Chemicals." Our Technical Service Staff will also be happy to offer help or information at any time.

OTHER PRODUCTS FOR PLATERS

SOLVAY® Ammonium Bicarbonate ■ SOLVAY Caustic Soda
SOLVAY Hydrogen Peroxide ■ SOLVAY Methylene Chloride

Allied Chemical

SOLVAY PROCESS DIVISION
61 Broadway, New York 6, N. Y.

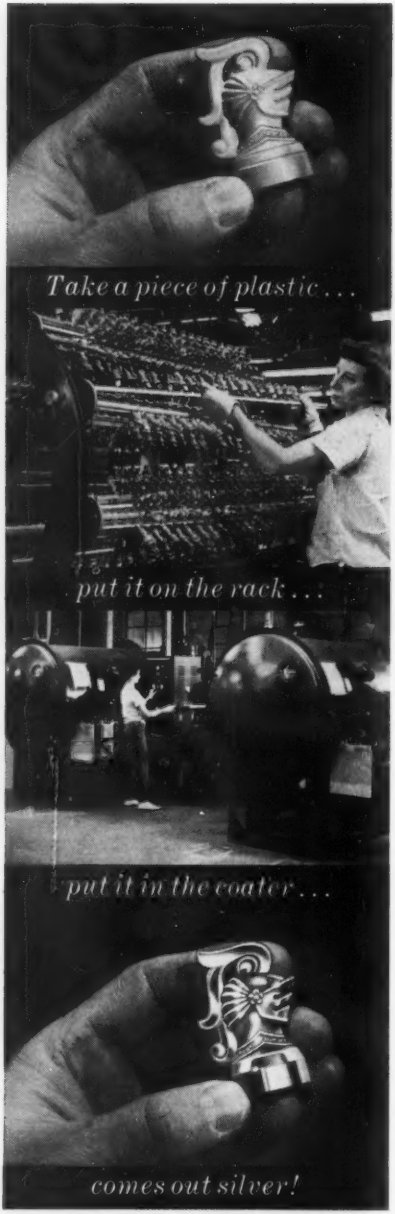
MUTUAL chromium chemicals are available through dealers and SOLVAY branch offices located in major centers from coast to coast.

SOLVAY PROCESS DIVISION 71-70
ALLIED CHEMICAL CORPORATION
61 Broadway, New York 6, N. Y.

☐ Send Bulletin 52, "Chromium Chemicals"
☐ Have a representative phone for appointment

Name_____
Position_____
Company_____
Phone_____
Address_____
City_____ Zone_____ State_____

For more data circle 329 on Postpaid Card



PLASTIC TO SILVER

. . . pennies per thousand, thousands per hour

Perfection Finishing Corporation, Wauseon, Ohio, keeps a bank of large CVC coaters busy full time, putting lustrous, luxury metallic finishes on plastic. Everything from closures to car ornaments. Each coater metallizes hundreds of pieces per cycle, 4 to 6 cycles an hour. And it takes less than a dime's worth of metal to coat a thousand. Top quality, of course—attested by increasing business *for* Perfection, additional CVC coater orders *from* Perfection.

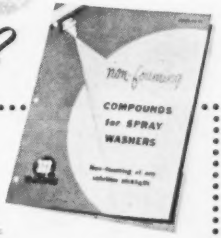
There's a complete line of CVC coaters—laboratory size to 72″ mammoth—to meet your needs. Just write for Metallizing Bulletins.

Consolidated Vacuum

ROCHESTER 3, NEW YORK

For more data circle 330 on Postpaid Card

Slight Problem with Foaming?



You'll find your answer in this new trio of *non-foaming spray washing compounds* — designed to out-perform any other cleaners on the market, yet guaranteed non-foaming at *any* solution strength.

Featuring a radically different *non-foaming* surfactant, these new Magnus compounds eliminate all restrictions on solution strength, simplify "make-ups" and insure both *unmatched cleaning and free-rinsing.*

Write for FREE folder

MAGNUS 91X3
for Aluminum and Light Duty Cleaning.

MAGNUS 92X3
for Brass, Copper, Steel and Certain Alloys.

MAGNUS 94X3
for Heavy Duty Cleaning of Steel.

magnus
CHEMICAL COMPANY INC

208 South Avenue
Garwood, N. J.

☐ Please send free folder on your new non-foaming spray cleaners.

☐ Please have service representative call to survey our cleaning problems.

NAME_____

POSITION_____

COMPANY_____

ADDRESS_____

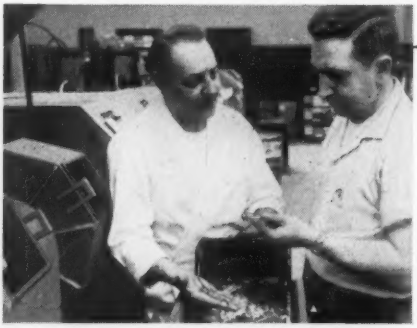
CITY_____ STATE_____

EQUIPMENT • CHEMICALS • METHODS

For more data circle 331 on Postpaid Card

PARKER PEN MAKES A POINT: the importance of proper finish . . .

and how ABBOTT helps to get it



Throughout the world, a Parker Pen is quickly identified by its distinctive arrow clip. Even while clasping firmly to a coat or shirt pocket, the clip properly signals the prominent Parker name . . . in some Asian countries, it's a status symbol and a mark of the wearer's literacy!

For these and similar reasons, the clip must **always** retain a gleaming, jewel-like finish . . . a finish durable enough to withstand the roughest everyday abuse . . . a finish that has no microscopic rough edges to snag or fray pockets.

To give the clip just such a finish, Parker uses Abbott steel burnishing media in vital tumbling operations. Besides producing the lasting, polished finish, the high-quality Abbott shapes increase the clip's surface hardness by compressing and compacting the grain structure of the metal.

What's right for your product . . . **finish** or **cut?** Send us a product or part sample. Without charge, we'll test it thoroughly and return useful recommendations promptly.

REQUEST BULLETIN AP-1 AND SAMPLE SHAPES.

ABBOTT *the Leader since 1909* 1909 1960

THE ABBOTT BALL COMPANY

17 RAILROAD AVE. • HARTFORD 10, CONN.

For more data circle 332 on Postpaid Card

KANIGEN®

The proved nickel alloy chemical plating—available only from General American and its licensees

KANIGEN is a chemically and metallurgically unique process for applying a hard, corrosion and abrasion resistant surface to most metals. KANIGEN is being used successfully for coating almost everything of any size—from the inside of a tank car to a tiny surgical needle—providing extreme uniformity of coating thickness even on complex shapes. Rack, jig or barrel plating may be used with KANIGEN.

You can rely on General American's integrity and experience and profit from its extensive research and development facilities. KANIGEN, of course, is patented to protect you from imitations.

KANIGEN is a trademark which identifies chemical nickel coating by General American Transportation Corporation and its licensees, the product resulting therefrom and compositions produced by them for use in chemical nickel coating.

KANIGEN is available from General American at East Chicago, Indiana; Sharon, Pennsylvania, and Compton, California, and from licensees in many cities. For further information write Dept. PF for technical bulletin #258.

PHYSICAL PROPERTIES

Specific gravity 7.9
Melting point ..... 1635 °F
Electrical resistivity
approximately 60 micro-ohms/cm/cm²
Coefficient of expansion
13 x 10^{-6} cm/cm per °C or
7.22 x 10^{-6} in/in per °F
Thermal conductivity
approximately 0.0105 to
0.0135 cal/cm sec °C (calculated)
Hardness
as plated—49 Rockwell C
heat treatable to 70 Rockwell C

World's largest production facilities for chemical nickel alloy plating on
Iron
Copper
Aluminum
Titanium
Beryllium
and their alloys

Pilot plant facilities are available for nickel alloy chemical plating on magnesium, uranium and non-metallics including thermosetting plastics, glass, ceramics.

Kanigen Division
GENERAL AMERICAN TRANSPORTATION CORPORATION
135 South LaSalle Street • Chicago 90, Illinois

KANIGEN GENERAL AMERICAN TRADE MARK

For more data circle 333 on Postpaid Card

SINTABUR*
SINTABRITE
SINTAHONE
SINTACUT
SINTACOTE

Scientifically-designed sintered-metal
TUMBLING SHAPES

(*TM. Reg. U.S. Pat. Off. & Pat. Pend.)

Here is an entirely new type of tumbling media with unique advantages for deburring, grinding, burnishing, and dry lubricant coating. These new media are produced by an exclusive Dixon Sintaloy process which permits low-cost, mass production of shapes with characteristics scientifically controlled for barrel finishing requirements.

Exceptionally long life — plus added savings in shorter work cycles, reduced labor and prolonged life with repeated re-use.

Non-clogging — non-powdering — precise shape, uniformity and great durability minimize clogging, jamming, charging or discoloring work.

Greater efficiency — more uniform results — the ideal media for the job means faster more efficient cutting, more uniform finished parts.

Simpler standardized operation — no compensating for wear during runs — speeds, simplifies and saves labor and assures higher work quality.

Write or wire direct to factory for full data.

DIXON SINTALOY INC.

a subsidiary of The Joseph Dixon Crucible Company
537 Hope Street, Stamford, Connecticut

For more data circle 334 on Postpaid Card

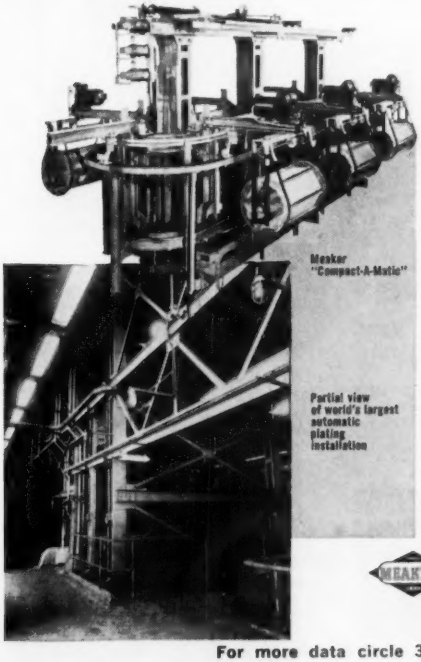
ONE complete source

for all electroplating and metalfinishing equipment

SINCE MEAKER 1899

AUTOMATIC EQUIPMENT AND SYSTEMS FOR CONTINUOUS OR BATCH METAL FINISHING

from the "compact-a-matic" for precision plating of small components with limited production... to the world's largest automatic plating installation occupying 180,000 square feet... MEAKER has been the preferred source since 1899.



Meaker "Compact-A-Matic"

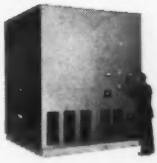
Partial view of world's largest automatic plating installation

Sol-Rex RECTIFIERS

Silicon • Selenium

Dependable DC power for electroplating, electropolishing, electrocleaning and anodizing.

50 to 50,000 amps "custom-engineered" at no premium in cost.



Sol-Rex JET-PLATER®

For Precision High-Speed Precious Metals Plating

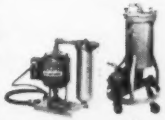
Single compact cabinet can be used for either rack or barrel plating... perfect for precision-plating of critical electrical or electronic parts, or "pilot plant" set-ups.

Sol-Rex SOLUTION FILTERS

Portable and mobile units for all liquid clarification needs.

1) PRE-MET FILTERS. Guaranteed leakproof operation — 25 to 800 GPH.

2) Double-Duty Series — New stainless steel mesh element doubles effective filtration area — 250 to 18,000 GPH.



1 2

MEAKER

THE MEAKER COMPANY

Subsidiary of Sol-Rex Corporation

Nutley 10, New Jersey

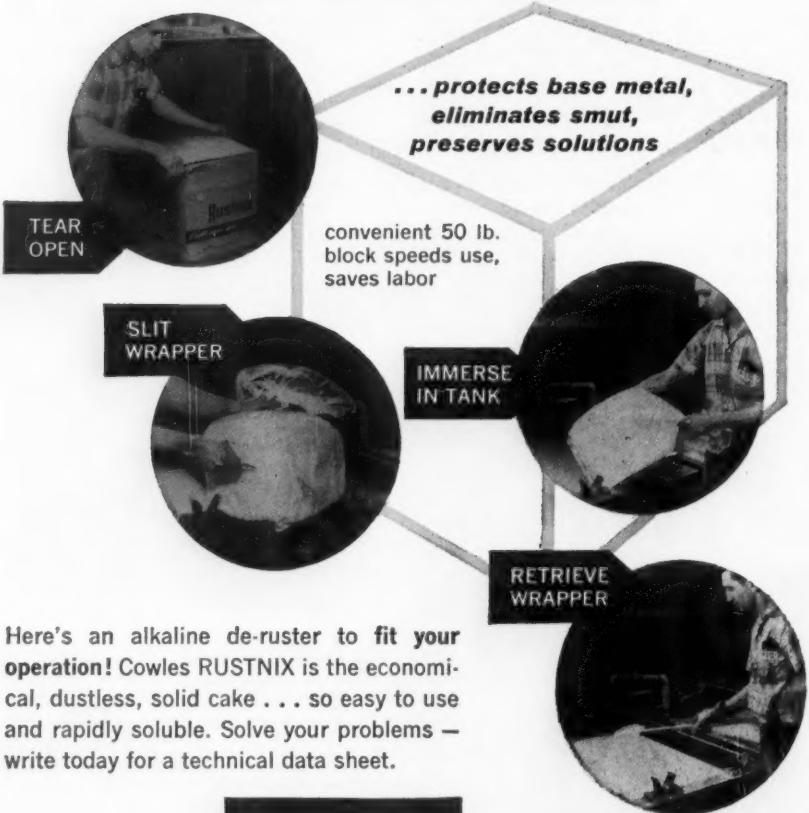
Factories and offices Chicago 50, Ill., and Nutley 10, N. J.

For more data circle 335 on Postpaid Card

NEW *Cowles*

Rustnix

ALKALINE DE-RUSTER


TEAR OPEN
...protects base metal, eliminates smut, preserves solutions
convenient 50 lb. block speeds use, saves labor
SLIT WRAPPER
IMMERSE IN TANK
RETRIEVE WRAPPER

Here's an alkaline de-ruster to **fit your operation!** Cowles RUSTNIX is the economical, dustless, solid cake . . . so easy to use and rapidly soluble. Solve your problems — write today for a technical data sheet.

Cowles

1885 — 75th Anniversary — 1960

CHEMICAL COMPANY

7016 Euclid Avenue
Cleveland 3, Ohio

For more data circle 336 on Postpaid Card

editorial

Los Angeles Is Ready for Your Visit!

The Los Angeles Branch of the American Electroplaters' Society invites you to attend the 47th Annual Convention of the Society, the first to be held on the West Coast.

We have tried to arrange an enjoyable and educational program: enough time to meet old and new friends and exchange ideas; a little first-hand observation of industry in the Far West; some sightseeing; an outstanding Symposium on Hydrogen Embrittlement, featuring recognized authorities; and enough free time to make you wish you had more to enjoy the things we have out here.

We will confess, however, we did have one little problem! We were going to give each of you a Key to the City (electroplated, naturally) but we discarded that idea and decided to give you the whole city instead.

'Tis proud we are to have you here and, please remember, we are going to be hurt if you fail to enjoy yourself, so—make known your slightest wish —for it will be our command.

Our plans include extensive entertainment for the ladies and a full program for the children, so bring the whole family. If you enjoy being here just half as much as we enjoy having you, then one and all will have a good time.

Welcome to Los Angeles! We're eagerly awaiting your visit.

Sincerely,

Tony Stabile

—GENERAL CHAIRMAN

Convention Timetable

(All events at Statler Hilton Hotel unless otherwise specified)

Sunday, July 24

2:00 P. M.—Honorary Membership Award Committee Meeting. Washington Room.

2:00 P. M.—Scientific Achievement Award Committee Meeting. St. Louis Room.

3:00 P. M.—Western Welcome Tea for ladies. Garden Rooms, East and West. Sponsor: American Buff Co.

8:00 P. M.—Get-Together Party. Golden State Room.

Monday, July 25

8:30 A. M.—Supervised bus outing for children. Buses from hotel.

10:00 A. M.—Grand Opening Session. Keynote Speaker is Paul F. Glaser of Space Technology Laboratories, Inc., El Segundo, Calif. Golden State Room.

11:00 A. M.—Business Meeting, Supreme Society. Golden State Room.

12:00 Noon—Branch Secretaries' Luncheon. New York Room.

12:00 Noon—Ladies' Program. Pacific Coast Luncheon and Entertainment. Pacific Ballroom. Sponsor: The Udylite Corp.

2:00 P. M.—Educational Opening Session. Golden State Room.

Dr. William Blum
Session Chairman

William Blum Lecture

On Monday, July 25 at 2:00 P.M., the Second Annual William Blum Lecture will be presented: *Faraday's Laws Applied to Cleaning*, by Dr. A. Kenneth Graham, Graham, Savage & Associates. Golden State Room.

Dr. A. K. Graham
Blum Lecturer

2:00 P. M.—Plant Visit, U. S. Chemical Milling Corp., Manhattan Beach. Bus from Statler Hilton.

2:30 P. M.—Educational Session A. Golden State Room.

2:30 P. M.—Educational Session B. West Garden Room.

2:30 P. M.—Midwest Regional Council Meeting. Dallas Room.

4:00 P. M.—Order of Past Presidents' Business Meeting. Detroit Room.

6:30 P. M.—Order of Past Presidents' Dinner. Washington Room.

8:00 P. M.—Convention Ball (Given by Metal Finishing Suppliers' Association. Admittance by Registration Badge). Pacific and Sierra Rooms.

Tuesday, July 26

8:00 A. M.—Charles Henry Proctor Memorial Leadership Award Selection Committee Breakfast. Boston Room.

8:30 A. M.—Golf Tournament (Sponsored by Metal Finishing Suppliers' Assn.). Los Coyotes Country Club, Buena Park.

9:00 A. M.—Educational Session C. Golden State Room.

9:00 A. M.—Educational Session D. West Garden Room.

9:00 A. M.—Membership Committee Meeting. Washington Room.

9:00 A. M.—Southwestern Regional Council Organization Meeting. Dallas Room.

9:00 A. M.—Public Relations Committee Meeting. Detroit Room.

2:30 P. M.—Annual Outing. Bus from Statler Hilton. Disneyland.

Wednesday, July 27

8:00 A. M.—Research Committee Breakfast. Cleveland Room.

8:30 A. M.—Supervised bus outing for children.

9:00 A. M.—Educational Session E—"Hydrogen Embrittlement in Metal Finishing" Symposium. Golden State Room.

9:00 A. M.—Educational Committee Meeting. Washington Room.

9:00 A. M.—Publications Committee Meeting. Boston Room.

9:00 A. M.—Research Committee Meeting. Detroit Room.

12:00 Noon—Joint Educational Committee and Branch Librarians' Luncheon. New York Room.

12:30 P. M.—Ladies' Program. High Sierra Luncheon and Fashion Show. Buses leave Statler Hotel at 11:00 A.M. Sportsmen's Lodge, North Hollywood. Given by PRODUCTS FINISHING and manufacturers and suppliers whose names were not available at press time.

2:00 P. M.—Educational Session F—"Hydrogen Embrittlement in Metal Finishing" Symposium. Golden State Room.

4:00 P. M.—A.E.S. Regional Group and Council Chairmen's Meeting. Dallas Room.

7:30 P. M.—Round Table Discussion on "Hydrogen Embrittlement in Metal Finishing." Los Angeles Room.

9:30 P. M.—Floor Show and Dance. Pacific and Sierra Rooms.

Thursday, July 28

9:00 A. M.—Business Meeting, Supreme Society. Sierra Room.

9:00 A. M.—Educational Session G. Golden State Room.

9:00 A. M.—Educational Session H. West Garden Room.

9:30 A.M.—Plant Visit, McCulloch Corp. Bus from Statler Hilton.

10:30 A. M.—Ladies' Program. Tour of the Movie Studios. Bus from Statler Hilton.

12:30 P. M.—Ladies' Luncheon (Dutch Treat) and Shopping. Farmer's Market.

1:00 P. M.—Plant Visit, Golden Citrus Juices, Inc., Anaheim. Bus from Statler Hilton.

2:00 P. M.—Business Meeting, Supreme Society. Sierra Room.

2:00 P. M.—Educational Session I. Golden State Room.

6:00 P. M.—Cocktail Party (Given by Metal Finishing Suppliers' Association). Wilshire Room.

7:00 P. M.—Annual Banquet and Dance. Pacific and Sierra Rooms.

Convention Registration — Ballroom Lounge No. 1

Mrs. Glen J. Beckwith
Ladies' Chairman

George-J. Hetz
Co-chairman

Earl Arnold
Educational Chairman

National Officers

PRESIDENT
RALPH D. WYSONG,
manager of Manufacturing Research, Studebaker-Packard Corporation, South Bend, Indiana, a member of the St. Joseph Valley Branch.

THIRD VICE PRESIDENT
MANUEL BEN,
Electrochemistry Div., General Motors Research Laboratories, a member of the Detroit Branch.

FIRST VICE PRESIDENT
DR. W. ANDREW WESLEY,
manager, Research Laboratory, International Nickel Company, Inc., Bayonne, New Jersey, a member of the Newark Branch.

PAST PRESIDENT
HERBERTH E. HEAD,
Engineering Division, Chrysler Corporaton, Detroit, Michigan, a member of the Detroit Branch.

SECOND VICE PRESIDENT
CHESTER G. BORLET,
technical director, Grand Rapids Brass Co., a member of the Grand Rapids Branch.

EXECUTIVE SECRETARY
JOHN P. NICHOLS,
A.E.S. Executive Office, Newark, New Jersey.

Educational Program

Session A

Monday, July 25, 2:30 P.M.
Golden State Room

Dr. Harold J. Wiesner
The Bendix Corporation
Session Chairman

***1—Applying Statistical Quality Control to Plating Processes*, by Robert W. Steinmetz, Western Electric Company, Inc.**

Statistical quality control is a scientific method of analyzing data and using the analysis to solve practical problems. It can be used to control plating baths and plating thickness; to reduce costs; and to improve quality.

***2—Chemical Milling: Controlled Metal Removal With Chemicals*, by C. Conner Shepherd, North American Aviation, Inc.**

Chemical techniques for metal removal are discussed in relation to present applications for chemical milling. The factors to be considered in selection of a chemical etchant are described. Variables which influence efficiency of the major processing steps are discussed.

***3—Hazards in the Plating Room*, by Dr. Walter R. Meyer, Enthone, Inc., Subsidiary of American Smelting and Refining Company.**

Causes for serious accidents, explosions and fires that have occurred in the plating room are described. Hydrogen explosions and eruptions from heated caustic solutions are considered. The hazards associated with the use of the following chemicals are discussed: cyanides, chlorinated solvents, sulfuric acid, halogen-oxygen compounds, chromates, nitric acid, hydrogen peroxide, and hydrofluoric acid. Miscellaneous accidents of different natures are mentioned.

Session B

Monday, July 25, 2:30 P.M.
West Garden Room

Herberth E. Head
Chrysler Corporation
Session Chairman

***1—Adhesion of Organic Enamels to Electrodeposited Nickel*, by Francis X. Carlin, The International Nickel Company, Inc., Research Laboratory.**

Strong bonds between freshly deposited nickel and subsequent organic enamel finishes have been produced by using various aqueous solutions of organic and inorganic compounds as post-treatments for the electrodeposits. The solutions apparently react to cause a conversion-type film on the nickel surface or to deposit a thin film of material which becomes strongly bonded to nickel. The film produced is receptive to a coating of organic enamel. Types of solutions, methods of application of nickel, organic finishes, and the method for testing the bond are discussed.

***2—Solid Film Lubricants as Organic Finishes*, by Lowell C. Horwedel, Electrofilm, Inc.**

Solid-film lubricants have a place in the organic finishing industry. As organic finishes, they are useful because of physical properties such as color, electrical conductivity, corrosion resistance and so on. Emphasis is placed on corrosion resistance and substantiating data is presented.

***3—Magnesium Corrosion*, by E. I. Weed, Convair/Pomona, Convair Division of General Dynamics Corporation.**

Considerable progress has been made in the past ten years in developing materials and processes for protecting magnesium from corrosion. These include anodizing, plating, and various organic coatings. In spite of these improvements, the protection of magnesium continues to be a problem. In most cases this problem can be solved by intelligent use of protective coatings now available. Attention to engineering, production and quality control is important.

Session C

Tuesday, July 26, 9:00 A.M.
Golden State Room

Dr. Russel E. Harr
Western Electric Co.
Session Chairman

***1—Recent Developments in Gold Electroplating*, by Barnet D. Ostrow and Fred I. Nobel, Lea-Ronal, Inc.**

A discussion of developments in gold plating with emphasis on application to industrial usage. The low-pH acid gold baths and a new high-speed bright cyanide gold are discussed.

***2—A Cyanide Bath for Heavy Gold Plating*, by James K. Gore and Robert Seegmiller, University of California, Los Alamos Scientific Laboratory.**

A cyanide gold plating bath capable of producing heavy gold deposits with good physical properties at rapid plating rates and reasonable temperatures is described. Designed for use in engineering applications, the bath produces bright to semi-bright, smooth, fine-grained, hard and relatively pore-free deposits, at rates of deposition up to 1.5 mils/hr. Although the deposits are hard, they are more ductile than most commercial bright golds. Smooth deposits 20-30 mils thick are readily obtained.

***3—Acid Gold Plating*, by Robert A. Ehrhardt, Bell Telephone Laboratories, Inc.**

An acid gold plating bath developed for plating on printed circuits is described. The paper includes data on the influence of pH, temperature, current density and bath composition on cathode efficiency and appearance. A porosity test was developed and used to determine the influence of the physical condition of the basis metal and of the various operating conditions on the porosity of thin gold deposits.

Session D

Tuesday, July 26, 9:00 A.M.
West Garden Room

Dr. Richard B. Saltonstall
Udylite Corporation
Session Chairman

***1—Corrosion and Electrode Potential Studies of Nickel-Chromium Coatings*, by Arthur Du Rose, The Harshaw Chemical Company.**

Corrosion protection offered by different systems of nickel-chrome deposits is compared. "Duplex" nickel has much to offer in improved protection for plated parts. The correlation among various types of exposure tests is discussed. The outdoor corrosion weight loss for bright nickel foil is only slightly greater than that for sulfide-free nickel, but the degree of perforation is much greater, and chromium intensifies the perforation.

***2—A Progress Report on Experiences in Improving the Corrosion Resistance of Automotive Parts*, by James D. Thomas, D .W. Hardesty and C. F. Nixon, General Motors Corporation Research Laboratories.**

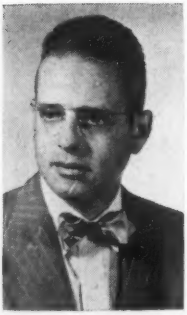
With improvement in the corrosion resistance of decorative plates, the CASS test has been modified, especially as to the time required for testing. In its present form as much as 100 hours has been required to produce failure. Experience now permits better correlation of CASS results with outdoor performance.

***3—New Data on the Performance of Nickel and Chromium Plated Zinc Die Castings*, by W. H. Safranek, H. R. Miller, R. W. Hardy, Dr. C. L. Faust, Battelle Memorial Institute.**

The results of research conducted for American Zinc Institute on procedures for improving electroplated zinc die castings have shown that corrosion resistance of die castings plated with 0.8 to 1.2 mils of duplex nickel and 0.05 mil of bright crack-free chromium is better than die castings plated with bright nickel-ordinary chromium composites. Crack-free chromium eliminated the corrosion pitting that occurred in duplex nickel-ordinary chromium composites.

***4—A Study of Variations in Certain Characteristics of Bright Nickel Deposits with Variations in Bath Temperature*, by R. J. Clauss, The Udylite Research Corporation.**

The effects of operating bright nickel solutions at temperatures above 175 deg. F. have been studied and certain characteristics of the electrodeposit such as microstructure, appearance and ductility are compared with the properties of deposits made at normal plating temperatures. The effect of temperature on various addition agents is discussed.



Session E

Wednesday, July 27, 9:00 A.M.
Golden State Room

Dr. Harold J. Read
Pennsylvania State University
Session Chairman

***1—The Metallurgical Aspects of Hydrogen Embrittlement in Metal Finishing*, by Dr. Harold J. Read, Pennsylvania State University.**

The practical problems of damage to metals by hydrogen embrittlement are outlined. The nature and extent of damage are discussed. Finishing processes to prevent hydrogen occlusion and post treatments to remove occluded hydrogen are discussed. Selection of metals and finishes is important in preventing hydrogen damage, and metallurgical information that helps prevent embrittlement is presented.

***2—On the Mechanism of Transport of Hydrogen Across a Solution-Metal Interface*, by Dr. Richard J. Barton, Wright Air Development Division, Wright-Patterson Air Force Base.**

The mechanisms of hydrogen entry into and release from metals are discussed in relation to presently accepted mechanisms for the hydrogen electrode reaction. The applicability of these hydrogen evolution mechanisms to certain solutions and metals is considered. These mechanisms are analyzed to determine at which stage deviation from the gas-evolution process occurs to cause hydrogen entry into the metal.

***3—The Behavior of Hydrogen in Iron and Steel*, by Maynard L. Hill, Westinghouse Electric Corporation Research Laboratories.**

Studies of the solubility and diffusivity of hydrogen in ferritic alloys have shown that the normal behavior above 200 deg. C. is for the hydrogen to dissolve interstitially. However, several pronounced deviations from this fundamental behavior have been observed at lower temperatures, where embrittlement occurs. These indicate that the hydrogen no longer resides in interstitial sites; instead, it segregates at sites of lower energy. Various possible types of segregation are discussed in relation to the mechanism of embrittlement.

***4—Detection and Control of Chemisorbed Hydrogen During Electrolysis*, by Samuel C. Lawrence, Jr., Boeing Airplane Co.**

Instrumentation to detect and measure hydrogen entering plated parts during electrolysis is described. These methods can be used for continuous, accurate monitoring of chemisorbed hydrogen. Data obtained from experiments employing these instruments have been applied successfully to keep chemisorbed hydrogen to a minimum. The relative importance of different "catalysts" or "poisons" on adsorption rates is shown.

Session F

Wednesday, July 27, 2:00 P.M.
Golden State Room

Dr. Samuel Heiman
Philadelphia Rust Proof Co.
Session Chairman

***1—Measurements Pertaining to Hydrogen Embrittlement*, by Dr. Cloyd A. Snavely, Battelle Memorial Institute.**

Measuring techniques which have been useful in hydrogen embrittlement studies are described, and their usefulness for future studies is critically examined. Included in the discussion are hydrogen charging methods, stressing methods, analytical problems, surface effects, and related phenomena. Problems in developing a standard embrittlement test are outlined.

***2—A New Look at the Hydrogen Embrittlement of Cadmium-Coated High-Strength Steels*, by Norman M. Geyer, G. William Lawless, and Bennie Cohen, Materials Lab, Wright Air Development Center.**

A sensitive embrittlement test consists of sustained loading of a notched tensile specimen (loaded at 75 per cent of the ultimate notched tensile strength for a minimum of 200 hours). Detrimental hydrogen embrittlement is shown to be dependent upon the steel alloy, the current efficiency of the cadmium plating bath and the physical structure of cadmium coating obtained. Processes for cadmium plating high-strength steel without detrimental hydrogen embrittlement are given.

***3—Effectiveness of Metallic Undercoats in Minimizing Plating Embrittlement of Ultra-High-Strength Steel*, by Dr. Walter Beck and E. J. Jankowsky, Naval Air Material Center.**

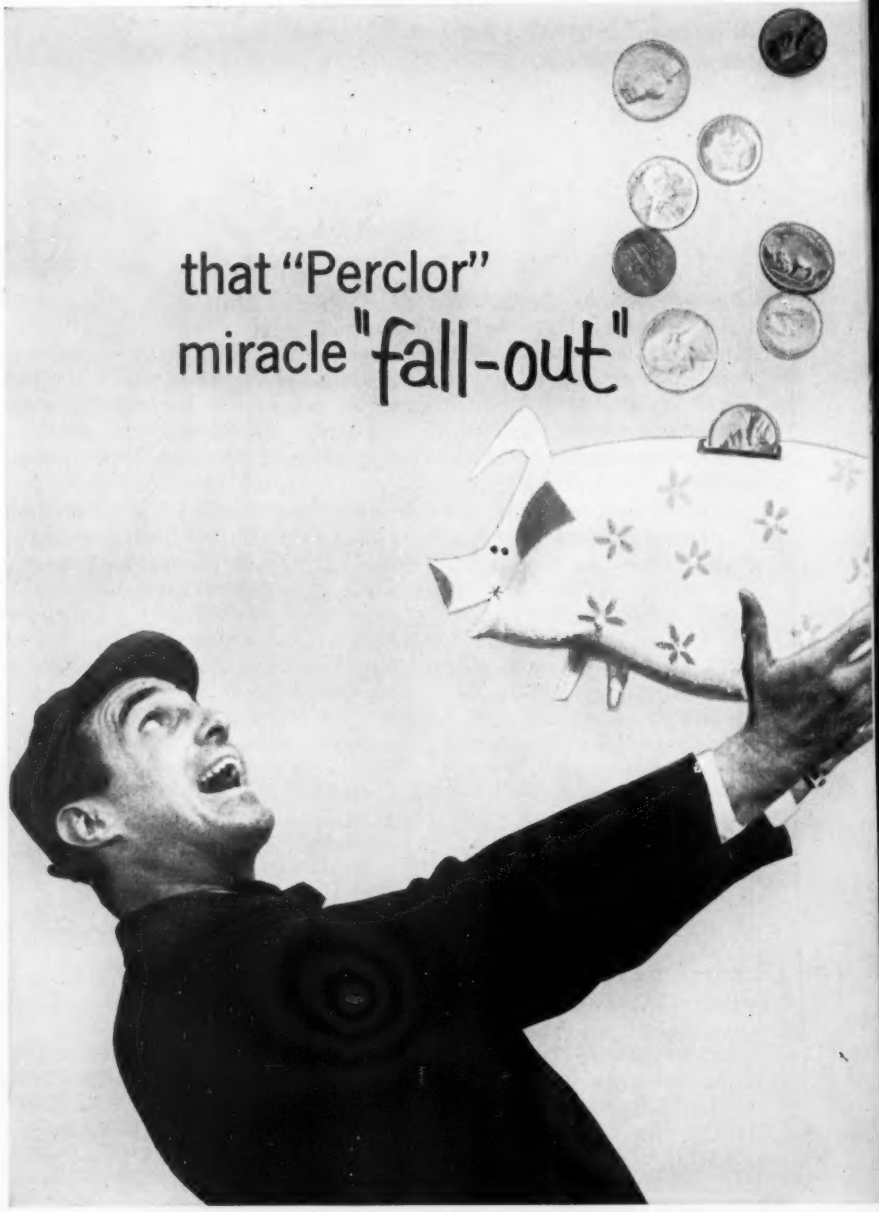
Description of a method of effectively reducing hydrogen embrittlement of ultra-high-strength steel resulting after chromium and cyanide cadmium electroplating. Pyrophosphate copper and Watts-type nickel undercoats are used. Cyanide cadmium plating solution is replaced by a fluoborate bath.

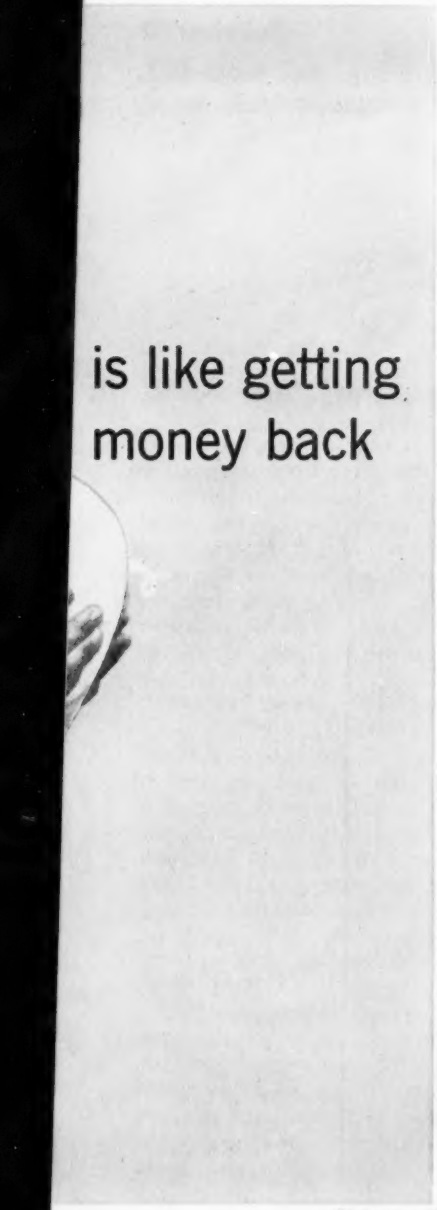
***4—Control of Hydrogen Embrittlement by Plating from Cadmium Cyanide Baths Containing Nitrate*, by Dr. W. F. Hamilton and Myron Levine, Lockheed Aircraft Corporation, California Division.**

A modification of the conventional electroplating process has been developed in which the plating of high strength steel parts can be satisfactorily accomplished without harmful hydrogen embrittlement. Addition of sodium nitrate and a chemical which increases throwing power to a high-cadmium, low-free-cyanide electrolyte produces satisfactory operating characteristics without visible cathodic gassing.

***5—Round Table Discussion, Hydrogen Embrittlement in Finishing*, Dr. Harold J. Read, chairman (Los Angeles Room, 7:30 P. M.)**

(Educational Program continued on page 50)


that "Perclor"
miracle "fall-out"



is like getting money back

your degreasing cycle

will be faster, cost less and keep your production line moving without interruption once you start on the Diamond Perchlorethylene "fall-out" method.

Because Perchlorethylene Vapor is 5½ times heavier than air, two things happen. 1. You get more of your solvent back. 2. Stain-free, etch-free parts are warm and dry . . . ready to go on to the next stage right away!

Let Diamond specialists test-clean a sample for you without charge. It will help you determine the degreasing cycle best for your operation. Call your Diamond sales office or write Diamond Alkali Company, Union Commerce Bldg., Cleveland 14, O.

Diamond Chemicals

For more data circle 337 on Postpaid Card

Session G

Thursday, July 28, 9:00 A.M.
Golden State Room

Dr. Abraham M. Max
Radio Corporation of America
Session Chairman

***1—Magnetic Properties of Electrodeposited Cobalt Alloys*, by Dr. Victor Zenter, Hughes Aircraft Company.**

The performance of permanent magnets depends primarily on the magnitude of the coercive force and remanence of the magnetic material. The correlation of these two properties with plating conditions in electrodeposited cobalt-nickel and other binary cobalt alloys has been investigated. Photographs of hysteresis curves taken with the aid of a B/H loop tracer which displays these curves visually on an oscilloscope show the influence of conditions of deposition on these magnetic properties. Preferred conditions of deposition for producing alloys with desirable magnetic properties have been established.

***2—Plating of Nickel, Cobalt, Iron and Cadmium from Sulfamate Solutions*, by Richard C. Barrett, Barrett Chemical Products Co.**

Technical data are given on the application and properties of nickel electrodeposited from sulfamate solution. Particular emphasis is given to high-temperature applications of deposits and special magnetic properties of nickel-cobalt and nickel-iron alloys. Hydrogen embrittlement aspects of cadmium deposition at 100 per cent cathode efficiency in sulfamate plating baths are discussed. Bath formulae and operating conditions for electrodepositing cobalt, iron, and cadmium from sulfamate solutions.

***3—The Chemical Reduction of Nickel-Phosphorous Alloys from Pyrophosphate Solutions*, by Morton Schwartz, Kelite Corporation.**

New electroless nickel solutions containing pyrophosphate complexing agents have been developed. These alkaline pyrophosphate solutions can be operated at temperatures lower than normally employed. Deposition rates are higher. Deposition rates of 0.5 to 0.7 mil/hr. have been obtained at 68 to 74 deg. C. The composition of the deposit is constant at 5 per cent phosphorous over a wide range of operating conditions. The effects of the important variables are discussed. The solutions are stable and easily maintained and controlled.

Session H

Thursday, July 28, 9:00 A.M.
West Garden Room

Francis T. Eddy
TELautograph Corp.
Session Chairman

***1—Solution Transfer in Barrel Plating*, by Paul Glab, R. Scott Modjeska and Simon P. Gary, Scientific Control Laboratories, Inc.**

A study of solution changes occurring within a plating barrel during the plating period and the effects of these changes in deposit characteristics, plating rates, and so on. A barrel is immersed in clear water and a soluble dye is introduced into the barrel. Color-dilution measurement show quantitative rate of solution transfer. Types of loads, perforation sizes and barrel speeds are varied. Studies in actual production in cadmium, copper, nickel, silver, tin, zinc, and brass show metal-ion concentration variation within the barrel from start to cycle completion.

***2—Cleaning Techniques in the Electronics Industry*, by Dr. D. E. Koontz, Dr. D. O. Feder and Dr. C. O. Thomas, Bell Telephone Laboratories, Inc.**

Trace amounts of extraneous materials may significantly influence the electrical characteristics and the feasibility of fabrication of modern electronic devices. The electronics industry needs more effective control over both the type and amount of contaminants. Contaminants are classified. Examples of their effects on the performance of typical devices are shown. Practical techniques developed for the detection, removal and control of contaminants are described.

***3—Chromium Plating of Rifle Barrels*, by Robert J. Girard and Edward F. Koetsch, Jr., Springfield Armory.**

A process for chromium plating the M14 Springfield Rifle barrel has advanced to a production stage at Springfield Armory. This paper discusses the development and adaptation of a process to electropolish and chromium plate the entire bore and chamber of this rifle. Electropolishing and chromium plating processes are outlined, including processing equipment, procedures, bath compositions, fixture design and maintenance, semi-automatic bore-cleaning operations, gaging of barrels, time guides for controlling electropolishing and chromium plating and the relation of viscosity and temperature to the taper obtained during electropolishing.

Session I

Thursday, July 28, 2:00 P.M.
Golden State Room

Maurice R. Caldwell
Doehler-Jarvis Div.
National Lead Co.
Session Chairman

***1—A.E.S. Research—Its Purpose and Accomplishments*, by J. D. Thomas, 1959-1960 chairman, A.E.S. Research Committee.**

The reasons for sponsoring research, the aims in selection of projects, and benefits to be gained are discussed. Financial support is obtained from active members, sustaining memberships, and donations from branches and other societies. A brief review is given of the active projects and those which have been completed. What the future promises is contemplated in view of the rapid changes taking place in the finishing industry.

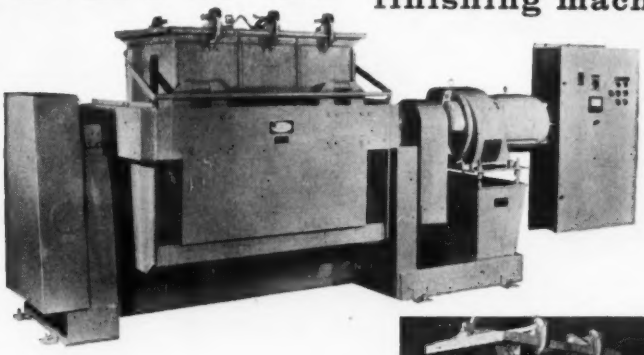
***2—Corrosion Protection with Decorative Chromium*, by Dr. E. J. Seyb, Metal & Thermit Corporation.**

During recent years chromium plates have been recognized for their value in protecting steel from corrosion when used over copper-nickel undercoats. Previously chromium was not considered in providing corrosion resistance; it was used primarily to avoid tarnish. The improved results are obtained by depositing greater thicknesses of crack-free or duplex chromium. These different chromium deposits are discussed, and their protective action illustrated by accelerated and outdoor exposure test results. Industrial applications are described.

***3—Experience in the Operation and Performance of Dual-Chromium Systems*, by W. E. Lovell, E. H. Shotwell and James Boyd, Ternstedt Division, General Motors Corporation.**

Dual-chromium plating has been practiced on a production scale for about two years. On the basis of accelerated and outdoor exposure tests, it provides markedly improved corrosion resistance over the single chromium plate formerly used. Methods of applying dual chromium, and problems encountered are discussed. A theory that explains the improvement in corrosion resistance obtained by dual chromium is advanced. Illustrations of desired crack patterns, a discussion of potentials of electrodeposited metals and techniques used for their measurement, and a description of the mechanisms of corrosion in single and dual-chromium systems are included in this paper.

what makes LORCO® the outstanding vibratory finishing machine?



ANSWER: Lorco builds outstanding performance into its vibratory finishing machines by providing those extra quality features that our long experience has shown pay off in better finishing results and lower finishing costs.

The Lorco lubrication system, for example. There is less costly equipment to lubricate the main bearings—but Lorco gives you an Alemite Oil Mist system that keeps foreign matter out of the vital bearings while it lubricates. And the Lorco *detachable* bowl construction—heavy gauge steel plate, all welds stress relieved by heat treatment, entire surface shot peened, with extra durable calendered rubber lining vulcanized to the metal.

Design features like these have proven their worth to over a hundred users, large and small, including many plants now operating several Lorco vibrators. At lowest finishing cost, and with minimum operating cost, these plants are achieving results that would be impossible with any other kind of equipment.

The F.J. Stokes Co. of Philadelphia, Pa. is typical. The parts illustrated at right formerly were filed, ground and buffed by hand, at a cost of $4.00 per piece. With a Lorco vibrator, they now deburr and finish these parts in record time, at a total cost of only 70¢ each, including all labor, operating and overhead costs.

Sixteen brass feed frames are fixtured for finishing in a Lorco vibrator. Cost saving $3.30 per unit.

Lorco's Unequaled Experience is at your service. Call on your Lorco engineer for the practical solution to finishing your "problem" parts. Or write today for details of Lorco experimental finishing service, and media and compounds for precision barrel and vibratory finishing.

LORD CHEMICAL CORP.

2068-E South Queen St.
YORK, PENNSYLVANIA

substantially owned and controlled by WHEELABRATOR CORPORATION

For more data circle 338 on Postpaid Card

M. F. S. A. Program

R. F. Ledford
Chemray Corporation
President, Metal
Finishing Suppliers'
Association, Inc.

H. J. Struckhoff
Struckhoff Engr. & Sales Co.
M. F. S. A. Liaison
Representative

(All events at Statler Hilton Hotel except as noted)

Sunday, July 24

11:30 A.M.—Brunch and Meeting, Board of Trustees. Buffalo Room.

Monday, July 25

12:00 Noon—Luncheon and Annual Meeting. Sierra Room.

8:00 P. M.—Convention Ball given by Metal Finishing Suppliers' Association. Dancing from 8 to 12, refreshments and snacks. Door prizes. Admittance by registration badge. Pacific Ballroom and Sierra Room.

Tuesday, July 26

8:30 A.M.—Annual Golf Tournament sponsored by M. F. S. A. Tee-off Time, 8:30 A.M.—1:00 P.M. Ladies invited. Register with M.F.S.A. Golf Committee (R. M. Burford, Pennsalt Chemicals Corporation, chairman) in convention registration area. Prizes to award skill and luck. Los Coyotes Country Club, Buena Park, Calif.

Thursday, July 28

5:50-6:50 P.M.—Cocktail Party given by Metal Finishing Suppliers' Association, Inc. Wilshire Room.

During the A. E. S.
1960 Convention in Los Angeles
Be Our Guest

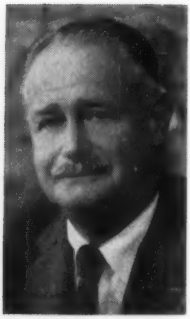
Cocktails, music and entertainment
5 to 7 p.m.
East Garden Room
the Statler Hilton Hotel

The Annual Udylite—A. E. S. Ball
In the Golden State Room
the Statler Hilton Hotel
10 p.m. to 2 a.m.—Thursday, July 28
Marshall McGraw and his Music

THE UDYLITE CORPORATION
Detroit, Michigan

THE L. H. BUTCHER COMPANY
Udylite on the west coast

N. A. M. F. Program



President of the National Association of Metal Finishers is A. T. Leonard, Superior Plating, Inc., Minneapolis, (left). Harold E. Coombes, Sr., (center) and Harold E. Coombes, Jr., (right), both of Crown City Plating Co., El Monte, Calif., are chairman and co-chairman, respectively, for this year's N. A. M. F. Annual Meeting.

(All events at Statler Hilton Hotel unless otherwise noted)

Thursday, July 21

9:00 A. M.—Board of directors' meeting.

6:00 P. M.—"Let's Get Acquainted." Studio Bar.

Friday, July 22

9:00 A.M.—Registration. Mezzanine.

9:30 A.M.—Annual membership meeting and election of directors. Sierra Room.

9:30 A.M.—Trip to Marineland for wives and children.

1:30 P. M.—Board of directors' meeting and election of officers. Washington Room.

Saturday, July 23

9:30 A.M.—For ladies, a tour of the Farmers' Market, luncheon and fashion show at Beverly-Hilton Hotel, Hollywood. (Bus transportation from Statler-Hilton)

9:30 A.M.—First Management Seminar. *Management Planning for Profits,* by Dr. Theodore A. Andersen, U.C.L.A. Los Angeles Room.

10:45 A.M.—Second Management Seminar. *Is It a Sin To Make a Profit?* by Dr. Orlo M. Brees, National Association of Manufacturers. Los Angeles Room.

1:30 P. M.—Third Management Seminar. Panel discussion on *Operating Cost Factors.* Moderator: Bert J. Sherwood, Chemplate Corporation, Los Angeles. Los Angeles Room.

Panelists and their topics:

Welfare and Fringe-Benefit Labor Costs, by Walter P. Behlendorf, Spence Electro-Plating Co., Los Angeles.

Job Costing in Plating and Enameling, by E. Paul Koeckritz, Jr., L. A. Parkerizing Co., Los Angeles.

A Unique Job-Costing System, by Bert J. Sherwood, Chemplate Corporation, Los Angeles.

Cost Factors in Barrel Plating, by David P. Hicks, Western Metal Finishing Co., Los Angeles.

Cost Factors in Precious Metal Plating, by Jerry Burton, Burton Silverplating Co., Culver City, Calif.

Cost-Estimating Procedures, by Harold E. Coombes, Jr., Crown City Plating Co., El Monte, Calif.

7:00 P. M.—Reception, cocktail party and banquet. Sierra Room.

9:30 P. M.—Floor show and dancing. Terrace Room.

Monday, July 25

8:30 A.M.—Breakfast meeting, local-association secretaries.

9:30 A.M.—Tour of Hollywood and a movie studio. Bus transportation from hotel.

10:30 A.M.—Plant tour. (Restricted to N.A.M.F. registrants from outside southern California area.) Crown City Plating Co., El Monte; Sanford Process Co., Los Angeles; Modern Plating Co., Los Angeles; Burton Silverplating Co., Culver City.

H-VW-M
SUPERLUME

THE PREMIUM BRIGHT NICKEL BATH

H-VW-M

Progress in metal finishing through advanced processes • equipment

we admit it

. . There may be other baths as bright as H-VW-M Superlume

But

SUPERLUME

IS THE MOST DUCTILE AT HIGHEST LEVELLING

SUPERLUME

LEVELS BEST

Sure, it costs a little more than conventional bright baths—but no more than other baths that are almost as good as fast plating Superlume. Why not get the best! Write or call for full details.

Hanson-Van Winkle-Munning Company, Matawan, New Jersey • Offices in Principal Cities
Alert Supply Company is H-VW-M in the West • Los Angeles • San Francisco

For more data circle 340 on Postpaid Card

Accent on Corrosion-Proofing

Plymouth now dips the lower parts of its bodies in seven different processing tanks to improve corrosion resistance . . .

Improving the finishing system was an important part of the multi-million-dollar modernization program recently completed at the Plymouth Assembly Plant in Detroit. The interior of this plant was rebuilt, from wall to wall. It's the biggest change in this plant since Plymouth was first introduced in 1928. Purpose: upgrade quality and quality control.

To improve the corrosion resistance and general finish quality of its cars, Plymouth installed a completely new finishing system. The outstanding

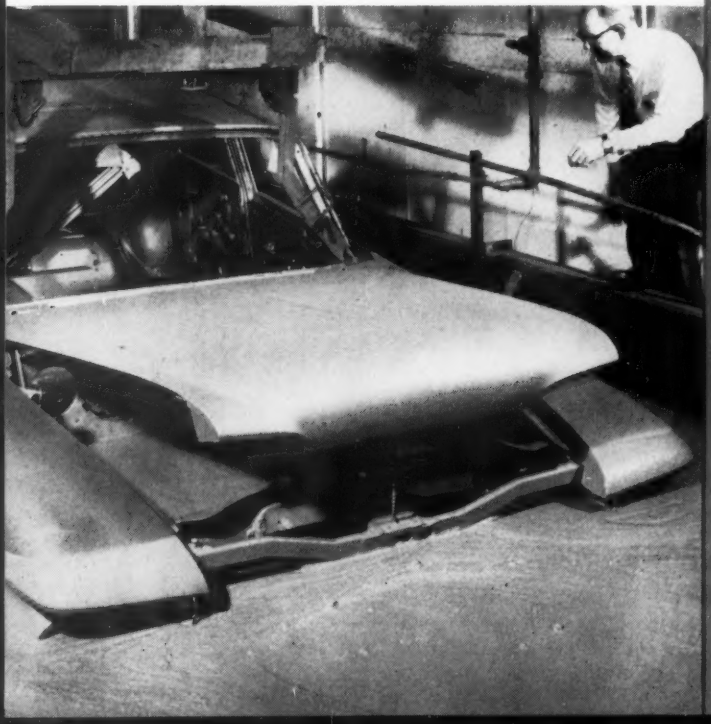


Fig. 1—A 1960 Plymouth eases into tank of water-based primer which protects lower parts of body and underside of the car.

Fig. 2—Charts indicate effectiveness of quality-control efforts to each shift.

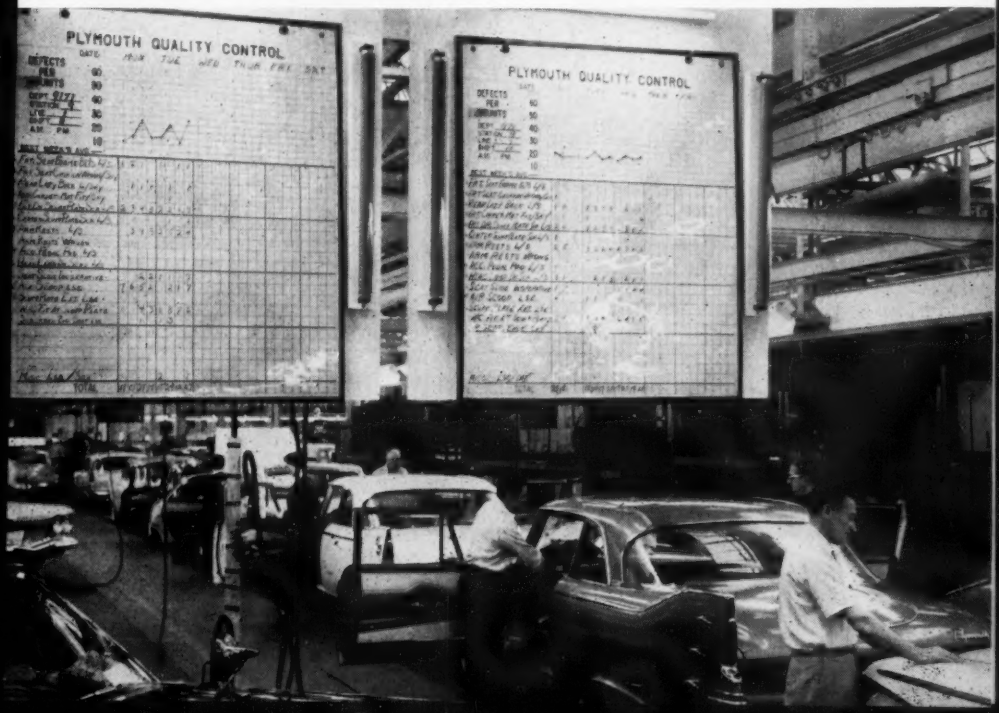
improvement here is the elaborate method for rustproofing the bodies. It involves *immersing* the lower 11-15 inches of the bodies in seven different cleaning, phosphatizing, rinsing and priming solutions. During this seven-dip process, upper exteriors of the bodies receive comparable protective treatments by spray applications. After the extensive metal preparation and rustproofing sequence, exteriors of the bodies are painted with epoxy primer and two coats of baked-on "super" enamel.

New finishing equipment required for the system included the following: a paint-mixing department outside the main building (for safety), which feeds paint through pipe lines which go to 56 stations in various parts of the plant; dip and spray washing and phosphatizing equipment; primer dip tank; a series of spray booths; and six huge drying ovens on the roof occupying an area of 56,000 square feet.

To get maximum protection from corrosion on the critical lower parts of the body where corrosion is the greatest problem, Plymouth dips the lower 18 inches of the body into seven solutions and rinses. In each of the seven immersions, the entire underbody and the lower portions of the body and doors are covered.

The anti-corrosion process takes an hour and 45 minutes. Bodies are carried through an enclosed tunnel 2300 feet long by an overhead "roller coaster" conveyor. They are dipped into the following solutions:

1. Alkaline cleaning solution. 170-180 deg. F. Immersed 16 inches.
2. Rinse in dilute alkaline solution. 150-160 deg. F. Immersed 17 inches.



". . . upper portions are sprayed with the same cleaning and phosphatizing solutions."

3. Water rinse. 140-150 deg. F. Immersed 17 inches.
4. Phosphatizing solution. 125-135 deg. F. One minute. Immersed 16 inches.
5. Cold water rinse. Immersed 17 inches.
6. Chromic acid rinse. Immersed 17 inches.

At the same time the lower portions of the body are being cleaned and prepared for painting by immersion, the upper portions are sprayed with the same cleaning and phosphatizing solutions. Spray heads are installed in the first section of each dip tank.

Bodies are dried in a convection oven which raises temperature of the metal to 225 deg. F. for three minutes.

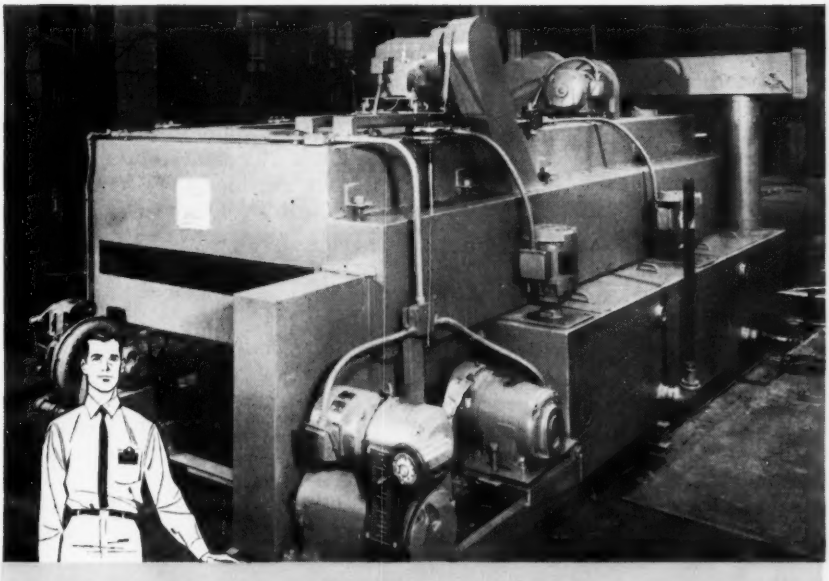
7. While the bodies are still hot, internal surfaces of body side sills are sprayed with water-reducible primer, using a probe-type nozzle. Then the body is immersed in water-based latex emulsion primer to a depth of 21 inches. Minimum film thickness, 0.0005 inch.

As the bodies emerge from the primer tank, the primer is removed from the visible exterior surfaces, using water. This prime coat is baked for 15 minutes at 250 deg. F.

The bodies are now ready to proceed through seven priming, sanding, painting and baking steps which are required to finish the exteriors. Procedure:

1. Coat with red epoxy primer.
2. Spray gray epoxy primer over the wet red primer. This coat is for sanding. The red primer beneath shows through when the gray primer is being sanded and thus helps to prevent "sand-through."
3. Bake. 350 deg. F. 27 minutes.

Fig. 3—Cars coming off the assembly line get the final OK at these checkpoints prior to shipment. (Photos courtesy Plymouth-Desoto-Valiant Div., Chrysler Corporation, Detroit.)



Economical, automatic cleaning for stainless steel sheets

Pennsalt sheet steel washers are ideal for cleaning polished stainless steel—including pre-annealing removal of oil.

Self-contained unit integrates washing, rinsing and drying . . . gives continuous, high-efficiency operation at speeds up to 200 feet per minute.

Readily adapted to automatic handling in and out. Also applicable to steel sheet and coiled strip and polished aluminum.

Washers are part of the complete line of metal surface preparation machines from Pennsalt. Because we supply both chemicals and equipment, we can treat your metal finishing process as an integrated system to assure top output, flexibility and product quality. Write today for a consultation.

. . . a better start for your finish®

Metal Processing Department 361
PENNSALT CHEMICALS CORPORATION
East: Three Penn Center, Philadelphia 2, Pa.
West: 2700 S. Eastern Ave., Los Angeles 22, Calif.

Pennsalt Chemicals of Canada Ltd., Oakville, Ont. • Industrial Química Pennsalt, Mexico City

Pennsalt® Chemicals ESTABLISHED 1850

For more data circle 341 on Postpaid Card

4. Wet sand.
5. Spray with "super" enamel (modified baking alkyd). Two wet coats on roof and side decorative strip (called "Sportone").
6. Bake. 250 deg. F.

6a. Mask areas already painted.

7. Spray with "super" enamel. Two wet coats on body. Different color used for two-tone cars.
8. Bake. 250 deg. F.

In addition to the elaborate finishing process used to protect Plymouths against the elements, almost 200 pounds of tar, rubber, cement, plastics and other weather-resistant materials protect each car against water and corrosion. Vibradamp, a tar-like material, gets the greatest usage. In all, 45 separate weather-proofing operations are performed during the manufacturing process at the Plymouth assembly plant.

Interior surfaces of body side sills are coated with a wax-type coating, using a probe-type spray nozzle.

Top surfaces of the underbody in the passenger foot wells are coated with a fluid deadener, which prevents corrosion when floor mats get wet from snow and slush carried in on shoes.

To make sure that the car has the quality that the plant is designed to produce, Plymouth has instituted a rigorous quality-control program.

With 17 inspection stations and 210 inspectors stationed throughout the plant, it's tough for a "lemon" to get by. The quality control men operate independently of manufacturing and assembly. Each inspector looks at the car as if he were going to buy it.

Typical of the quality checks is the dousing each Plymouth gets to test for leaks. In a hurricane-force water test, the car must be leak-tight to withstand water thrown under a pressure of 30 p.s.i. (see front cover). For four minutes, 280 gallons per minute search for tiny leaks that may not have been discovered previously.

★ ★ ★

Metal Processing Equipment. Illustrated 15-page booklet describes machines, materials and manpower services Pennsalt offers for every type of metal processing requirement.

The company's lines of metal cleaning, coating and lubricating compounds includes metal cleaners, aluminum cleaners, etchants, and brighteners, descaling and pickling compounds, Fosbond phosphatizing agents, Foscoat pre-lubricant coatings, Foslube drawing compounds, Drawcote deep drawing lubricants, paint strippers, strippable vinyl coatings and quality processing chemicals.

Pennsalt machines which utilize these include belt-conveyor-type washers, monorail-type conveyor washers, rotary drum washers, sheet steel washers, automatic spray washers, agitating washers, automatic coating machines, automatic phosphatizing machines, drying and paint ovens, paint spray booths, and a number of other machines. The brochure also includes discussion of Pennsalt's complete custom-built finishing systems.

Copies of the new brochure are available from Metal Processing Dept., Pennsalt Chemicals Corp., 3 Penn Center, Philadelphia 2, Pa.

NOW! A CYANIDE COPPER PROCESS FOR ANY APPLICATION

There's no longer any need to stock a different brightener for every operation . . . not when your present process can be inexpensively converted to the versatile 23-11 method! With improved 23-11 you cut inventory and operating expenses *and* get better results in every application, whether barrel, die cast, or plating of steel. For a 23-11 bulletin, the name of your nearest distributor, and information about the 23-11 trial offer, write to:

ELECTROCHEMICAL PRODUCTS, INC.

1820 ALVERNO DRIVE
BROOKFIELD, WISCONSIN

For more data circle 342 on Postpaid Card

Survey shows . . .

Current Practice in Plating Zinc Die Castings

A trend toward new processes that up corrosion resistance, but no stampede to a single standardized method . . .

Several techniques now used for plating zinc-base die castings produce deposits with greatly improved resistance to corrosion in the anticipated service environments. These techniques were described in a recent Plating Symposium conducted by the American Zinc Institute in Detroit. Activities at the Symposium and comments made by the several speakers were summarized and reviewed in the December, 1959 issue of PRODUCTS FINISHING.

Mr. Safranek, I believe that you recently made a survey to form some idea of the use being made of the new methods for plating die castings discussed at the American Zinc Institute Plating Symposium. Would you care to comment on your findings?

Mr. Safranek: To determine the plating practices now used in plants plating zinc base die castings, we surveyed ten major suppliers of automotive hardware and two smaller plants.

One phase of the survey involved processing techniques. We found that plating processes vary slightly from plant to plant. Most die castings are plated in the following manner (after cleaning):

1. Copper strike for 1½ to 3 minutes.
2. Copper plate in high-temperature, high-concentration, high-efficiency copper bath at 170 to 175 deg. F. Current interruption is used in some plants (but not periodic reverse). Time usually 8 to 12 minutes.
3. Nickel plate in semi-bright bath or Watts-type with no brightener (depositing sulfur-free nickel) to a thickness of 0.0005 to 0.0009 inch (minimum).
4. Nickel plate in bright nickel solution to a thickness of 0.0002 to 0.0003 inch (minimum). The thickness of the bright nickel (which contains sulfides) usually is about 25 per cent of the total nickel thickness.

W. H. SAFRANEK, American Zinc Institute Research Project, interviewed by EZRA A. BLOUNT, editor.

Mr. Safranek is assigned to the AZI Research Project on the finishing of zinc die castings, conducted at Battelle Memorial Institute, Columbus, Ohio.

5a. Chromium plate in conventional chromium solution (five plants). Chromic acid, 33 oz./gal. Sulfate ratio, 100 to 1. Temperature, 105 to 115 deg. F. Current density 100 to 175 a.s.f. (depending upon temperature).

5b. Chromium plate in "crack-free" chromium bath (two plants). Mixed-catalyst self-regulating bath. Temperature, 120 to 123 deg. F. Chromic acid, 50 to 53 oz./gal.

5c. Chromium plate without cracks in high-temperature, high-ratio, high-concentration bath (four plants). 40-45 oz./gal. chromic acid. Sulfate ratio, between 135 to 1 and 150 to 1. Temperature, 120 to 130 deg. F. Current density, 175 to 300 a.s.f.

5d. Chromium plate in two successive solutions — duplex process (one plant).

Did you obtain information on the minimum plate thicknesses being specified and deposited in the plants surveyed?

Mr. Safranek: The following tabulation shows the MINIMUM thicknesses used by most of the plants surveyed.

Metal	*Minimum Thickness*
Copper	0.0003 to 0.0007 inch (all plants).
Duplex Nickel	0.0008 to 0.0012 inch (eleven plants).
Chromium (conventional)	0.000010 inch (five plants).
Chromium (crack-free)	0.000020 to 0.000050 inch (six plants).

GLOBE CHEM
INDUSTRIAL
Chemicals • Solvents
CHEMICALS
PANY INCORP.
SOLUTIONS AND
CHEMICAL SPECIALTIES

EXTENSIVE TECHNICAL
SERVICE ON INDUSTRIAL
CHEMICAL COMMODITIES AND
GLOBE PROPRIETARY ITEMS

ACIDS
ALKALIES
PHOSPHATES
PAINT STRIPPERS

BATTELLE
ELECTRO and CHEMICAL
POLISHING SOLUTIONS

Literature Available on Request

The GLOBE
CHEMICAL COMPANY
INCORPORATED

CINCINNATI 17, OHIO
24 Murray Rd. and Big Four R. R.
Phone AV 1-7400

DAYTON, OHIO
967 Deeds Ave.
Tel. BA 2-4035

LOUISVILLE, KY.
105 No. 15th St.
Tel. JU 7-6506

COLUMBUS, O.
648 Concrea Rd.
Tel. BE 1-3671

INDIANAPOLIS, IND.
1120 S. Harding St.
Tel. ME 2-8546

For more data circle 343 on Postpaid Card

One plant uses a combination of copper, bright nickel, and duplex chromium with a total plate thickness of 0.0015 inch minimum. The duplex chromium is about half crack-free chromium and half micro-cracked chromium, plated in that order. Total plate thickness in recesses (heavier elsewhere) is 0.00003 to 0.00006 inch.

Discussion at the recent American Zinc Institute Plating Symposium emphasized the need to produce more corrosion-resistant deposits on die castings. What did your survey reveal regarding accelerated corrosion test results or experiences?

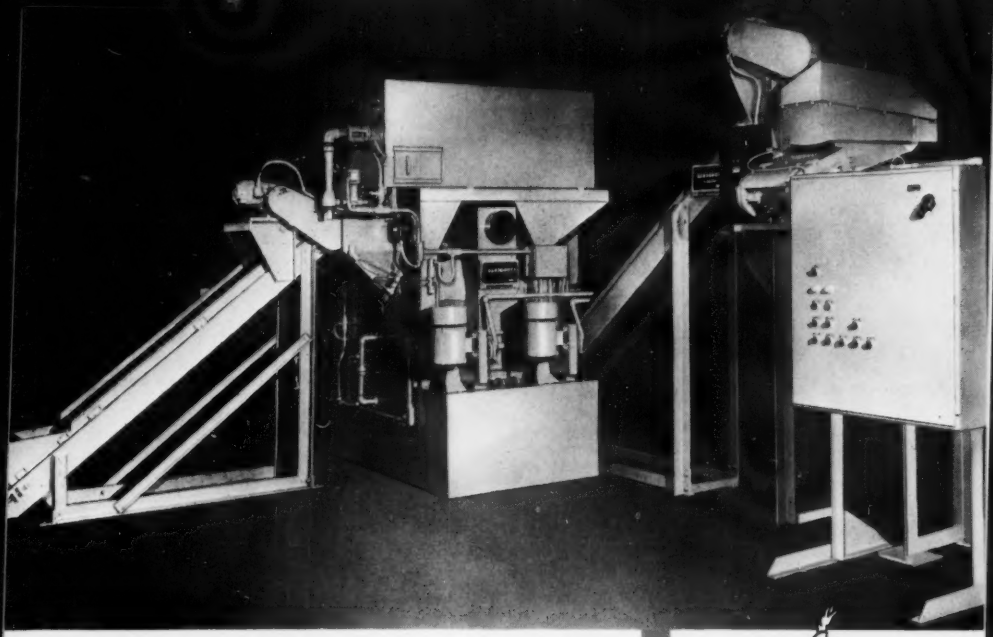
Mr. Safranek: At seven of the plants, 16-hour CASS Tests (16-hour CASS Test is said to be equal to one winter of outdoor exposure on an automobile in Detroit) produced no corrosion. There was some surface pitting in 32 hours of the CASS Test. Corrodkote testing (16 hours) caused no corrosion on parts plated in five plants.

The automotive industry and its suppliers are looking forward to the day when they can produce a coating which will withstand a 54-hour CASS Test without surface defects.

The plant using bright nickel plus duplex chrome says its die castings sometimes can pass a 54-hour test. In one plant plating duplex nickel and crack-free chromium, very little corrosion occurs on most parts during 54 hours of the CASS Test.

Industry is rapidly accepting the new plating processes because they improve corrosion resistance.

No one process is a panacea, however. Experimentation continues to reveal methods of making further improvement.



New **RANSOMATIC**

washes, deburrs, rinses, and dries 4,100 stampings an hour... automatically!

Saves floor space...handling... and man hours

The stainless steel stampings processed in this Ransomatic were formerly cleaned in a vapor degreaser, and trucked to tumbling barrels for dry deburring. Dust left on the parts frequently jammed the feeder of the machine which automatically assembled the finished appliance.

Now, lost motion and trucking is eliminated. Work is received directly from the presses. The entire cleaning operation is automatic. Equally important, product quality is much improved and inventory control is easier.

If you have a finishing problem, write or phone us. You'll find we speak your language.

Write for completely indexed 36 page catalog on Ransohoff equipment for the surface treatment of metals.

RANSOHOFF/ROTO-FINISH

20 North Fifth Street, Hamilton, Ohio Phone: TWinbrook 3-5813

For more data circle 344 on Postpaid Card

NOW-3 ISOBRITE® COPPER PLATING PROCESSES

to fit your operations, your production and cost needs.

ISOBRITE® COPPER #607-622 FULL BRIGHT

Best for high-speed, full-bright finish on zinc die castings, steel, brass or bronze.

CONSISTENT MAXIMUM BRILLIANCE—Primary agent suppresses burning, secondary agent operates well in medium and low current density area; both contribute to overall brightness.

COMPLETE COVERAGE—Covers extremely well in low current density areas. Ideal for parts requiring deep throw; produces plate in deep recesses comparable to buffed areas.

ECONOMY—Plates uniformly over high and low current density areas to save on copper consumption. Easy analysis for brightener level.

ISOBRITE® COPPER #623 GENERAL PURPOSE

Ideal for shops with varied operations. Gives full or semi-bright plate on zinc base die castings, steel, brass or bronze.

EASY-TO-USE—A single addition agent for rack or barrel plating. Easily controlled for desired brightness level.

HIGHLY ECONOMICAL—Use as semi-bright at half the cost of full bright solutions.

VERSATILE—Easily buffed to cover wheel marks. Also brightens well in areas not easily accessible to buffing. Use in rack or barrel plating operations.

ISOBRITE® **COPPER #625 BUFF BRIGHT**

Produces a very soft plate for quick buffing.

A COMPLETELY ORGANIC SYSTEM—No metallic constituents.

VERY ECONOMICAL—Works well over wide variations of temperatures and concentrations.

EXCELLENT FOR STOP-OFF—Produces plate that resists penetration by heat-treating or case hardening.

VERSATILE—Use in cyanide solutions with or without tartrates, Rochelle salts or proprietary substitutes.

These Isobrite Copper Processes contain no lead and are ready to work as soon as current is turned on, even after week-end shut downs. This means increased production and substantial savings by eliminating poorly plated rejects.

Auxiliary Addition Agents for Added Efficiency and Economy

ISOBRITE #630 Aids anode corrosion for greater efficiency and produces finer grained deposits.

ISOBRITE #631 Chrome reducer. Wide range of operation. Forms no undesirable breakdown products.

ISOBRITE #627-W Wetting agent. Non-ionic surface agent with low-foaming action.

ISOBRITE #628-W High detergency type wetting agent for severe organic contamination. All our wetting agents are easily cleaned from parts to give good nickel adhesion.

See your Allied Field Engineer for complete information and recommendations for the specific process that best meets your requirements. He's listed under "Plating Supplies" in the yellow pages. Write for FREE TECHNICAL DATA FILES.

Allied Research Products, Inc.

4004-06 EAST MONUMENT STREET • BALTIMORE 5, MARYLAND
BRANCH PLANT: 400 MIDLAND AVENUE • DETROIT 3, MICHIGAN
West Coast Licensee for Process Chemicals: L. H. Butcher Co.
European Agent: Stora Gruvberget, Storgatan 10, Stockholm, Sweden
Chemical and Electrochemical Processes, Anodes, Rectifiers, Equipment and Supplies for Metal Finishing

IRIDITE® Chromates | **IRILAC®** Coatings | **ISOBRITE®** Brighteners | **ARP®** Supplies | **WAGNER** Equipment

For more data circle 345 on Postpaid Card

Chemical Milling at Work

A look inside a California plant that specializes in shaping metal by chemical action . . .

By LEW B. STEARNS
Project Manager
United States Chemical Milling Corporation
Manhattan Beach, Calif.

Despite the relative youthfulness of the process, chemical milling* has already carved an important niche for itself in industrial production. Reason: chemical milling provides design and production advantages not formerly available. It doesn't replace any of the older metal removal processes; instead, it performs work which, prior to its development, was neither practical nor economically feasible. Using mechanical metal-removal techniques is out of the question when producing the shapes and contours now produced by chemical milling. Because of this inherent advantage, chemical milling offers many new possibilities to design and production engineers.

United States Chemical Milling Corporation, Manhattan Beach, California, has played a major role both in the advancement of chemical milling knowledge and the application of chemically milled products. In ac-

*See also Berst, Neil W., "Current Practice in Chemical Milling," PRODUCTS FINISHING, Feb. 1959, page 31; Gurnham, Dr. C. Fred, "Metal Milling by a Chemical Etch," PRODUCTS FINISHING, October, 1956.

Fig. 1—United States Chemical Milling Corporation plant at Manhattan Beach, Calif.

complishing the work, a staff of experts supervises the operation of the world's finest array of chemical milling facilities and equipment. Another staff of engineering experts aids industry in evolving new uses for chemically milled products.

Chemical milling is basically a process for removing unwanted metal from a part or product by etching it away in a suitable solution. Areas on the part where no metal removal is desired are protected by masking which is applied prior to etching and peeled off afterwards.

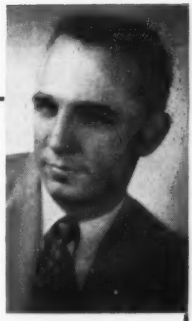
Speed of metal removal averages about 0.001 inch per minute of immersion; some alloys can be etched more quickly, while others require more time.

Step cutting, or removal of different amounts of metal from different areas on the part is accomplished by interim masking or mask peeling during etching. A part can be given a taper by withdrawing it from the solution at a predetermined rate, thus allowing the thinner portions of the taper more time to etch.

Since geometry is unimportant in access of the solution to the surfaces involved, parts may be cast, forged, formed, contoured or spun into any shape prior to chemical milling. Metal removal from a curved or irregular surface proceeds at the same uniform rate as from a flat surface.

Uses in which chemical milling has proved effective include (a) material removal over large areas; (b) reducing weight of thin-gauge sheets that are difficult or impossible to machine; (c) reducing thickness of contoured parts after spinning, stamping, stretch forming, press forming, or brake forming; (d) general or localized weight reduction on forgings and extrusions; (e) tapering of flat or contoured parts; (f) reducing sections in magnesium, steel, or titanium castings; (g) producing parts where the small number needed does not justify permanent tooling; and (h) the creation of "waffle" patterns for air frame construction.

One of the major uses of chemical milling has been to eliminate the fabrication and assembly of detail parts by forming integral doublers and stiffeners. This technique has been particularly effective in aircraft and missile work. In conventional production, the doublers and stiffeners are fabricated as a separate part, then attached by riveting or spot welding. The chemically milled part



LEW STEARNS, author of this article, has been with U. S. Chemical Milling for four years. As project manager, he watches over projects in the development stage, trouble shoots in production.

Lew has a BS degree in chemical engineering from the University of Idaho, is a registered professional engineer in the State of California. He holds several patents, has published papers on chemical milling.

"Original metal finishes play an important role in producing quality chemically milled surfaces."

includes these doublers and stiffeners as integral members of the finished product. Of course, the fabricator must start with a sheet of sufficient thickness to include the thickness of the integral member.

A description of the chemical milling process as employed in the shops at USCM will have to be somewhat generalized because of the variety of work accomplished. Different alloys require different solutions used at different temperatures, and details concerning etching times, etching temperatures, solution maintenance, and so on, are beyond the scope of this article.

Alloys currently being milled in volume at USCM include those of aluminum, magnesium, titanium, steel, and the stainless steels. The company accepts work at any stage of its progress, from the original blueprint stage to completed parts ready for chemical milling. The same applies to the necessary scribe and inspection templates—USCM will produce them from blueprint information, or accept them ready-made from the contractor.

Original metal finishes play an important role in producing quality chemically milled surfaces. Therefore all blank parts, whether received from the contractor or produced in USCM's own shops, receive careful inspection prior to chemical milling. Scratches, tool marks, or other sur-

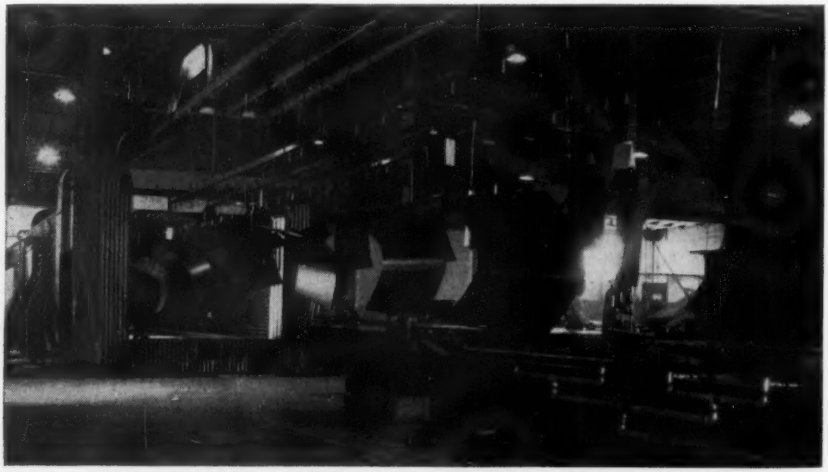


Fig. 2—Large formed panels with maskant applied enter an oven for maskant cure. Maskant is applied to areas of the parts which are not to be etched. Great care is taken to be sure that maskant adheres firmly so that areas which must be protected are not attacked by the etchant. After etching, this material is stripped off.

face imperfections are reproduced by the chemical milling process and must be eliminated before etching begins.

After inspection, all parts are chemically cleaned within four hours of the time the maskant is applied. Any surface dirt on the part, including finger prints, may cause poor adherence of the masking material. This might permit entrance of the etching solution and damage to areas where no metal is supposed to be removed.

To mask the parts, USCM applies a protective film by dipping or flow coating. Various maskants have been developed by USCM, some formulated for resistance to caustics, others designed to withstand strong acids. The maskant used depends upon the type of solution in which the part will be etched. Some maskants are dried by baking them for an hour or two at low temperature; others are air cured. In all cases maskant curing is a critical process, for the finished film must exhibit faultless adhesion to the metal during etching to provide full protection and produce well-defined edges. At the same time cohesion in the film must be excellent so that it will strip cleanly from the areas to be etched.

After the maskant has been applied and cured, template guides are superimposed upon the part for scribing out the areas to be etched. These scribe templates must fit the part perfectly, and are built to close tooling tolerances. This is necessary for exact duplication of the chemical milling pattern throughout volume production runs. As the etchants undercut the maskant in proportion to the depth of the cut, precise calculations are required during template layout.

Maskants are not employed when overall weight reduction is the goal. In this case, the bare part is immersed in the etchant until the necessary reduction in dimensions is obtained. Such parts might be forgings or castings requiring a reduction in webb thickness below that obtainable with the original process.

Parts are ready to etch when the maskant has been scribed and stripped from the areas to be chemically milled. Selected areas on both sides of a part may be etched simultaneously to the same depth. By progressively exposing additional areas that previously were masked, "step cuts" can be accomplished economically with only one mask application. Of course, this requires interruption of etching while additional masked areas are scribed and stripped.

The size and number of parts that can be etched at one time is limited

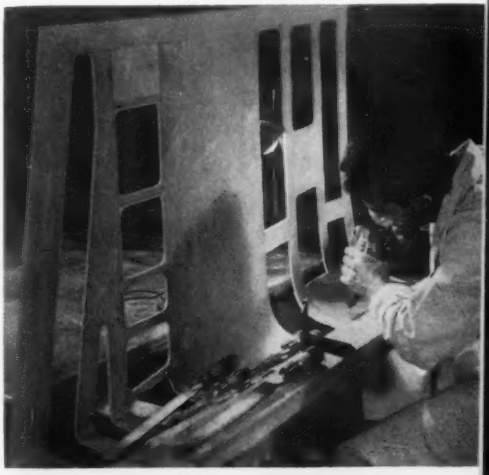
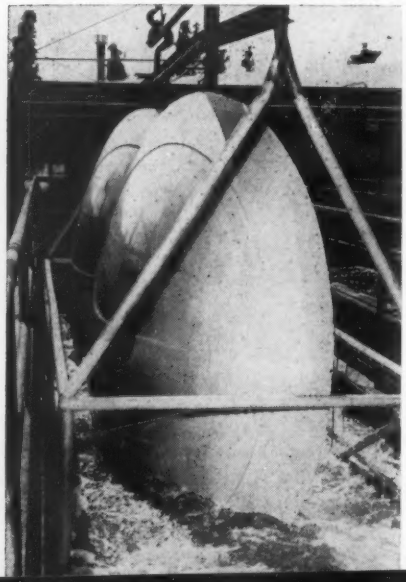


Fig. 3—Preparing a scribe template which will be superimposed upon the blank part and act as a guide for scribing and stripping the maskant from areas to be etched.

Fig. 4—Using a scribe template to scribe areas from which maskant will be stripped. Etching will take place in exposed areas.

Fig. 5—Two large spun metal shapes (formed in USCM's own huge metal spinning department) go into an etch tank for overall weight reduction. (Photos courtesy U. S. Chemical Milling Corporation, Manhattan Beach, Calif.)



only by tank capacity. Tanks up to 50 feet long, 6 feet wide, and 12 feet deep are available at USCM for conventional work. A special tank 12 feet in diameter and 60 feet deep is used for chemical milling of tapers in long work.

During chemical milling, parts are carried on specially-designed racks and fixtures, or in large metal baskets. Great care is used in loading. It is extremely important that all parts be hung or placed so that chemical action can take place at a uniform rate. Parts must be positioned so that agitation will continually replenish the solution adjacent to exposed metal surfaces. Entrapped gases may cause uneven etching. Also, parts must be securely fastened so that they will not rub together and injure the maskant.

Electric hoists lower the parts into the caustic or acid solutions. Chemical action removes metal from all exposed surfaces at an even rate; thus depth of cut may be controlled with extreme accuracy. Metal removal proceeds at the rate of approximately 0.001 inch per minute, with variations caused by the alloy being milled, its heat treatment and other metallurgical characteristics such as grain size, direction, and so on.

After the parts are chemically milled, the maskant is stripped from the unetched areas. Final step is to brighten oxidized surfaces and wash the parts thoroughly. Parts are then carefully inspected, approved, and packed for shipment.

As with many electroplating processes, process control is extremely important in chemical milling. Solu-

tion standards are carefully maintained by continual analysis. Additions are made to maintain solution strength. When additions are made, a portion of the old solution is drawn off, with the additive bringing it back to normal level.

At USCM, steam coils are used for tank heating. Temperature is closely controlled, since it is one of the three elements—time, temperature, and solution concentration—that influences amount of metal removed. Normal tolerances obtainable in chemical milling are plus or minus 0.003 inch. Much closer tolerances are possible by using special handling techniques.

Surface finishes obtainable in chemical milling vary with the alloy and its metallurgical history. A surface finish of about 125 RMS is obtainable on commercially available aluminum and magnesium alloys. In most cases the original surface finish is reflected in the chemically milled surface finish; with some of the titanium and magnesium alloys, surface finishes are usually improved during chemical milling.

Most chemically milled parts have been used in aircraft and missile production for the military; but the possibilities in the production of commercial parts are tremendous. At USCM, etched metal store fronts have been turned out, and the process has been used for producing attractive matte finishes on aluminum castings.

People attending the 47th Annual Convention of the American Electroplaters' Society (July 24-28, Los Angeles) will have an opportunity to tour this plant and see chemical milling first-hand.

STAMPINGS VACUUM METALLIZED

BRIGHT FINISH . . . LOW COST . . . HIGH QUALITY

Now you can eliminate your high polishing and plating costs and obtain the same results by hi-vacuum.

METAPLAST has the "know-how" and specially built equipment to handle large production runs at low prices. Finishes have been successfully applied in the lamp, cosmetic and houseware industries.

Write for further details.

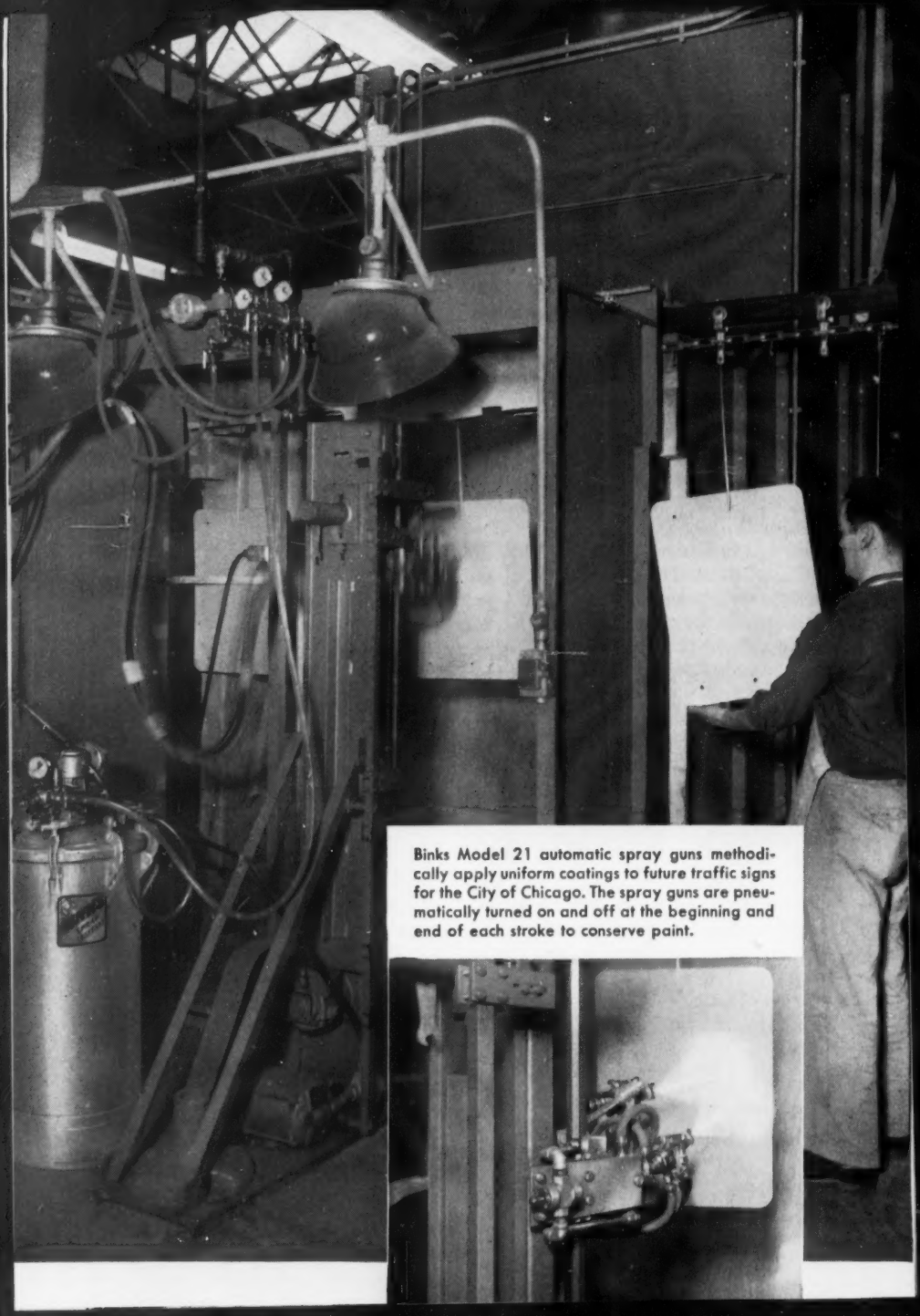
Pioneers in Vacuum Metallizing since 1947

METAPLAST PROCESS, INC.

34-51 56TH STREET

Woodside, L. I., New York

For more data circle 346 on Postpaid Card



Binks Model 21 automatic spray guns methodically apply uniform coatings to future traffic signs for the City of Chicago. The spray guns are pneumatically turned on and off at the beginning and end of each stroke to conserve paint.

Chicago's Sign Division

cuts painting time from 2 days to 1 hour

"With our old equipment and air dry paints, it took us two days to paint a sign. With Binks automatic spraying system and drying ovens, we now do the same job in only 1 hour," states Mr. Don R. Crowell, City of Chicago Traffic Engineer.

Quality finish boosts sign life

Until Binks equipment was installed, many of the 100,000 signs produced each year had to be farmed out. Now all signs are painted in the Sign Division shop. Quality has been improved, too, since sign life is now about six years as against two years when painted by previous manual spray methods.

Saves time and paint

Besides a great savings in time, the new Binks system saves money by cutting the amount of paint needed through reduction of overspray. Although present production is 100,000 signs per year, the new Binks system can turn out up to 250,000 signs . . . an ample allowance for future growth needs.

Free planning service

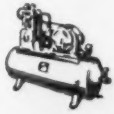
If you have a spray finishing problem, it will pay you to consult a Binks spray finishing engineer. He will show you how a Binks integrated spray system can speed up finishing and give you better quality at lower cost. For an appointment call your nearest Binks office or write direct.

Ask for Bulletin 975 . . . describes spray finishing equipment, methods and systems.

Ask about our spray painting school
Open to all...NO TUITION...covers all phases

Binks
EVERYTHING FOR
SPRAY PAINTING

SPRAY GUNS



AIR COMPRESSORS

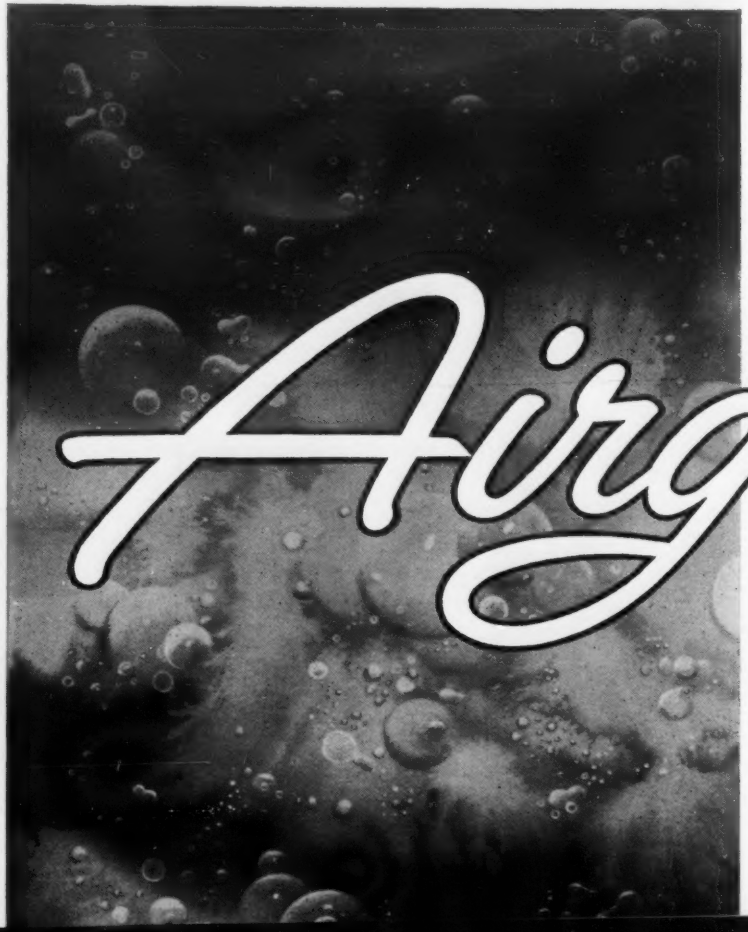
NATIONWIDE SERVICE

Binks Manufacturing Company
3118-40 Carroll Avenue, Chicago 12, Illinois

0570

REPRESENTATIVES IN PRINCIPAL U.S. & CANADIAN CITIES • SEE YOUR CLASSIFIED DIRECTORY

For more data circle 347 on Postpaid Card



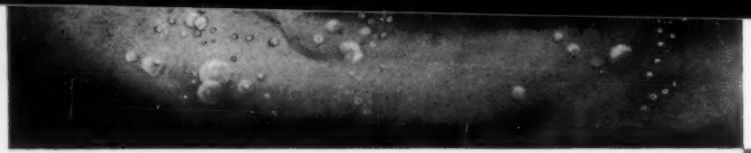
HARSHAW

HARSHAW Airglow

AIR-AGITATED BRIGHT NICKEL PROCESS

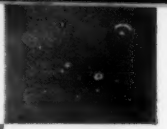
Gives you insurance against air supply failure because it operates efficiently with any agitation system.

Airglow allows the use of cur-



chanically agitated systems.

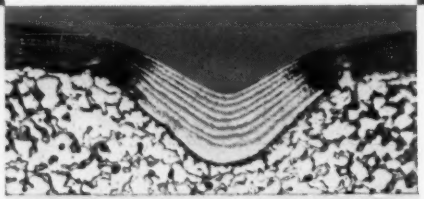
Levelling effects of Harshaw Airglow Bright Nickel deposit compared to that of Harshaw Perflow leveling semi-bright nickel.



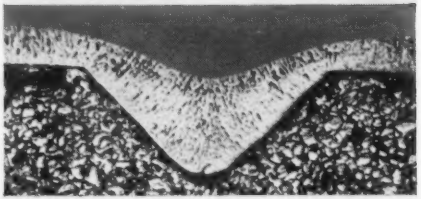
- Airglow depth of color and brightness unequalled.
- Airglow corrosion resistance—the best of any bright nickel.
- Airglow gives levelling comparable to Perflow levelling!
- Airglow gives economies unusual for bright nickel.

Let us show you!

Allow us to give you the complete story on this outstanding process by contacting the nearest Harshaw office.



TOP: Airglow Bright Nickel—1.5 mil deposit—depth of groove 3.1 mils.
BOTTOM: Perflow Semi-bright Nickel—1.5 mil deposit—depth of groove 3.2 mils.



THE HARSHAW CHEMICAL COMPANY

1945 EAST 97th STREET • CLEVELAND 6, OHIO

CHICAGO 32, ILLINOIS • CINCINNATI 13, OHIO • CLEVELAND 6, OHIO • DETROIT 28, MICHIGAN • HASTINGS-ON-HUDSON 6, N.Y. • HOUSTON 11, TEXAS • LOS ANGELES 22, CALIF. • PHILADELPHIA 48, PA. • PITTSBURGH 22, PA.

Plating Processes also available through the following Foreign Distributors or Manufacturers:

HARSHAW CHEMICALS LTD., LONDON, ENGLAND
ARMALITE CO. LTD., TORONTO, CANADA
L. VAN DER HOORN, UTRECHT, HOLLAND
ROBERT BRYCE & CO. LTD., MELBOURNE, AUSTRALIA

And many Agents throughout the world

For more data circle 348 on Postpaid Card

finishing clinic

(Suggested solutions to problems submitted by readers. Send your problems to our Editorial Staff. There is no charge.)

Stains on Zinc Plated Parts

Question: *We barrel cyanide zinc plate and clear chromate dip small parts. Periodically, we find grayish stains on the parts, as are evident on samples enclosed. We have thoroughly treated our baths for impurities and checked our sources of chemicals and anodes but are unable to find the source of this stain.*

I would appreciate your suggestions concerning this problem.

L. J. B.

Answer: There are two possible sources of trouble which you may not have already investigated. If your clear chromate dip has been formulated with impure or contaminated nitric acid, this may be the cause of your trouble. It is our understanding that very small amounts of phosphoric acid in the nitric, which is subsequently added to the clear chromate dip, creates a condition quite similar to that exhibited by your parts.

The contamination of phosphoric acid occurs because acid suppliers sometimes use the same carboys for shipping nitric acid and (later) phosphoric acid.

One way to make a quick check of this condition is to use the chromate dip with no agitation. If this produces the gray spots, repeat the process using as much agitation as possible. If this seems to correct the condition somewhat, then it is likely that the chromate dip contains impure or contaminated nitric acid.

Perhaps the suppliers of chromate dips and zinc plating solutions could also offer suggestions and assistance in the solution of your problem. Suppliers of "Chromate Conversion Coatings," are listed on pages 62 and 63 of the PRODUCTS FINISHING DIRECTORY. Suppliers of "Zinc Plating Processes," are listed on pages 207 and 208.

★ ★ ★

Bright Dipping

Question: *Could you recommend a good activating dip for solid brass prior to oxidizing with "liquid sulfur?" We would like to avoid the use of fuming dips such as the nitric-sulfuric bright dip.*

W. E. D.

Answer: It is quite possible that the information contained in the article, "Brighter Prospects for Brass and Copper," by Dr. Paul H. Margulies, contains information which will be useful to you. This article was reprinted from the January, 1958 issue of PRODUCTS FINISHING and we are enclosing a copy of the reprint. The article outlines the use of ammonium persulfate (25 per cent) for brightening brass.

Vinyls and Plastisols

Question: *We are anticipating installing equipment for applying plastisols. We are in the finishing business and apply all other coatings.*

Please give me the names of the best suppliers of plastisol and also the names of manufacturers who make dipping equipment.

E. G. D.

Answer: In the PRODUCTS FINISHING DIRECTORY you will find a list of the manufacturers of plastisols on pages 180 to 182.

Manufacturers of dipping equipment are listed on page 162 of the PRODUCTS FINISHING DIRECTORY under the heading, "Painting Equipment, dip coat." Usually, dipping equipment may be relatively simple, consisting only of a metal tank and a lifting device so that the coated product may be withdrawn slowly. I am forwarding with this letter reprints of articles on plastisol coating which may be of interest and value to you. They are:

"How to Apply Plastisols by the Dip-Coat Method"

"Plastisol Coating of Wire Products"

★ ★ ★

Stripping Tin

Question: *Please supply us with information on the stripping of plating racks from a tin line. We have been using a nitric acid strip and it has not been too successful. The racks have a buildup of zinc, copper and tin.*

D. D.

Answer: Tin may be stripped either in concentrated hydrochloric acid or by the use of reverse current in a caustic-soda solution. Since your racks are coated with copper also, that would complicate the problem. It is possible that the addition of sodium cyanide to a caustic-soda solution would make it possible to remove both metals by reverse current.

A number of new stripping solutions based on sodium nitro-benzene sulfonate and sodium cyanide are available commercially. The companies who supply proprietary stripping solutions are listed under the heading, "Stripping Solutions, metal," on page 243 of the PRODUCTS FINISHING DIRECTORY.

★ ★ ★

Barrel Finishing

Question: *We are making a survey of current literature pertaining to burrs and deburring. Can you supply us with a bibliography or reprints of articles on this subject? We are particularly concerned with deburring precision machined copper parts, both in the work-hardened and annealed condition.*

Any information concerning proper machining techniques aimed at avoiding the creation of a burr would also be appreciated.

R. S. G.

Answer: PRODUCTS FINISHING has probably published more information on barrel finishing than any other publication.

Unfortunately we do not have reprints or tear sheets of all the articles published. We can supply you with the following reprints and tear sheets of articles published on this subject in PRODUCTS FINISHING: "Effect of Media Size and Time Cycle on Barrel Finishing Results"; "Factors in the Evaluation of Steel Burnishing Materials"; "A Further Discussion of the Use of Minerals in Barrel Finishing Processes"; "Barrel Finishing: Materials and Techniques for Precision Results, Parts I and II"; "Worn Gears: Barrel Finishing Solves a Problem"; "How to Tumble-Finish Tungsten Carbide Parts"; "Barrel Finishing Stainless Steel Hex Nuts"; "New Machine Smooths Contoured Parts."

Sheet metal fabricator installs . . .

New Complete Finishing System

The City Auto Stamping Company Division of Globe-Wernicke Industries, Inc. produces large metal stampings for manufacturers of automobiles, trucks, farm and garden equipment, home appliances.

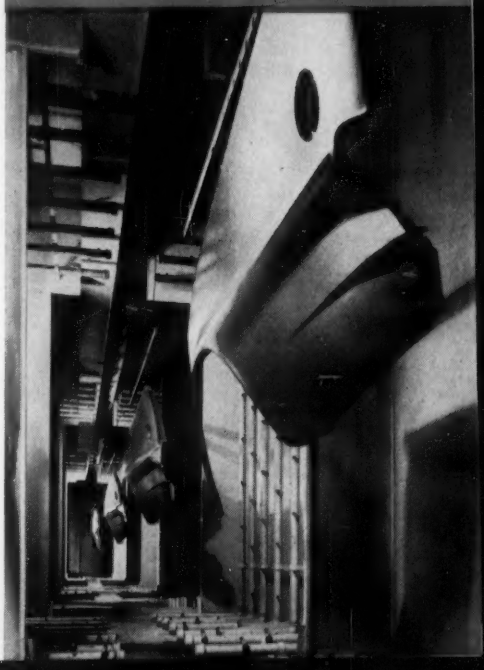
This company recently improved its finishing facilities by installing a complete, conveyorized finishing department. Engineers of The DeVilbiss Company and The City Auto Stamping Company designed the system.

The new installation has the size and capacity to accommodate large body panels for autos and trucks, fenders, doors and hoods, plus the flexibility to handle smaller stampings required by City Auto's customers in fields other than automotive. The minimum conveyor opening in any of the installation's units is 3 feet wide by 6½ feet high.

Since gas is readily available and is economical in the Toledo area, it is used as a source of heat throughout this installation: in both of the ovens; the air replacement system; and for the various wash and rinse tanks. Modulating-type burners provide close and accurate temperature regulation. All of the heaters are equipped with the controls and safety features necessary to have the entire system meet both Factory Insurance Association and Factory Mutual requirements.

This system is a complex loop occupying a rectangular space approximately 50 by 175 feet. Both the loading and unloading stations are at the same corner of the area. This speeds handling of unfinished and finished work.

The overhead monorail conveyor travels at 14 feet per minute. Universal bars are attached to its hangers



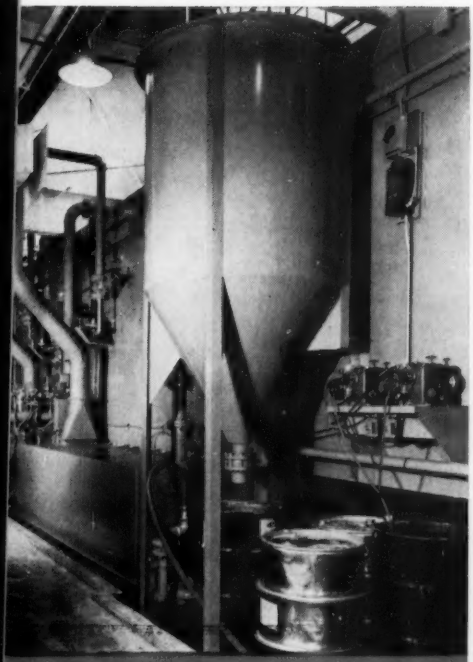


Fig. 2—Automatic chemical compound proportioners and sludge settling tank for cleaning-phosphatizing machine (right).

Fig. 1—Interior of five-stage phosphatizing machine. Jets shown spray hot cleaner.

and work is hung on the bars by as many wire hooks as are required for proper support.

Once the work is hung on the 1050-foot-long conveyor, it moves from one operation to the next in a continuous, uninterrupted travel. The first steps in the finishing operation are the five stages of the washing and phosphatizing process (Figs. 1, 2, 3). The machine that does this job is 135 feet long.

All solutions used in cleaning and preparing the metal surface are heated by pre-mix-type gas burners. A single operating panel controls all burners, blowers, ventilation fans, and so on. Interlocks are provided in the controls to assure the correct sequence of start-up procedure from this one point.

To conserve space, the five-stage machine is "L"-shaped, with the cleaning stage on the short side. After all oil, grease and particles of dirt and steel have been removed by the high-pressure sprays of hot cleaning compound, the work turns a corner and enters a hot-water rinse.

Following the rinse, the work moves into the phosphatizing stage. Here it is sprayed with the hot phosphate solution for approximately one minute. Automatic-proportioning feed pumps add chemicals to the solution to make up for that used in treating the work. To remove solid particles from the phosphate solution, a gravity sludge collection tank is used. After the material has settled, clear solution can be decanted off the top and returned to the machine. Sludge is then drained from the bottom for disposal.

After another hot-water rinse, the work passes into the final stage of the machine. This sprays a dilute

". . . the spray gun is attached to the heat exchanger with heated hose."

chromic acid solution on the metal. The metal-preparation process takes 10 minutes.

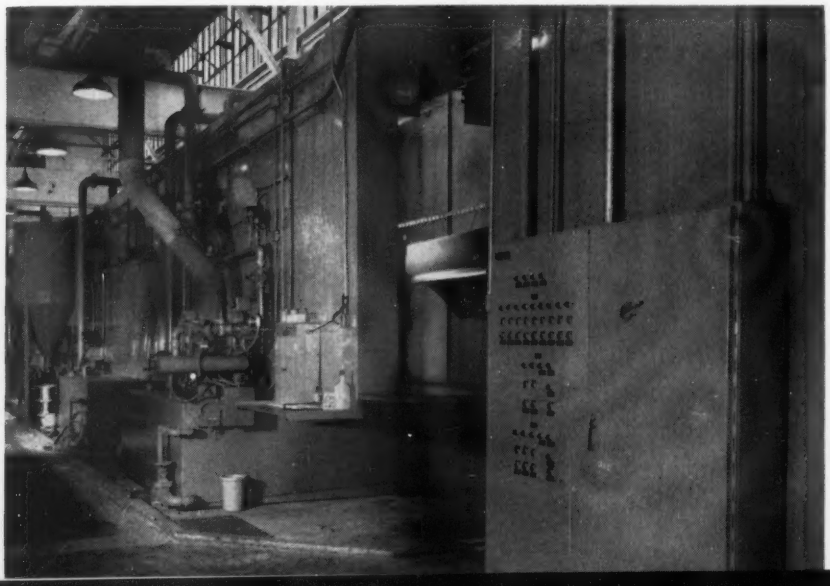
Following the last stage of the wash and phosphatizing machine, the work enters an 80-foot-long dry-off oven (Fig. 4) which is heated to 450 deg. F. This comparatively high temperature is necessary to evaporate all moisture within the five minutes it takes for work to travel through this oven. A five- or six-minute cool-off period at room temperature is provided before the pieces reach the paint spray booths.

The two 16-foot water-wash booths (Fig. 5) are staggered so that both sides of the work can be painted as it travels along the conveyor: one side in one booth and the opposite side in the second booth. There are two spray stations in each booth.

All paint is sprayed hot. The hot-spray method makes it possible to apply a thicker film in one application. It also helps prevent runs and sags. Everything on this line is painted in a vertical position.

DeVilbiss paint heaters are used. The five heat exchangers in the two booths get hot water from a remote 24-kw. heater-and-pump installation. Paint travels to the heat exchangers (Fig. 7) through a three-line continuous circulating system with a fluid pressure regulator at each exchanger. To keep the paint warm as it travels to the gun (approximately 140 deg. F.) the spray gun is attached to the heat exchanger with

Fig. 3—Central control panel for new five-stage phosphatizing machine at City Auto Stamping (foreground), exit from machine (center), heaters for tanks (background).



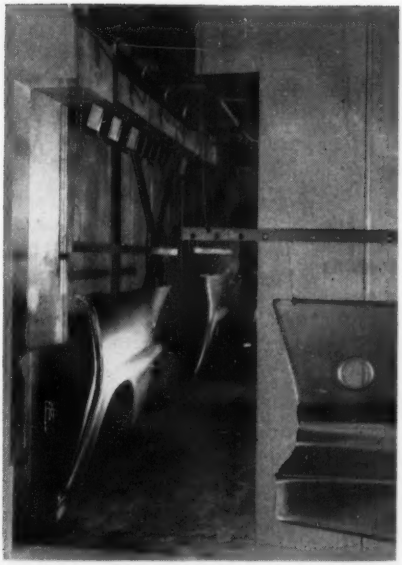


Fig. 4—Exit from dry off oven. Air seal at opening keeps heat in. Adjustable heat outlets and plenum are shown at top left.

heated hose. The same hot water used in the rest of the system circulates through the water jacket of this hose, and maintains the temperature right up to the gun. Standard type P-JGA-502 spray guns are used.

To ensure completely clean, dust free work, the booths are pressurized. A 40,000-c.f.m. air-replacement unit pumps filtered and heated air into the booths so that pressure slightly exceeds that of the surrounding space.

The color, texture and gloss of the finished Globe-Wernicke pieces are very important. The desks, file cabinets, and so on, are assembled from components produced in different batches. Thus precise control of color is necessary.

This control over the paint color and viscosity is performed in the mixing and pump room (Fig. 6). Paint is supplied from this single supply source through pipe lines to

Fig. 5—One of the two staggered water-wash paint-spray booths. Paint heaters and spray equipment are at left. Hot spray helps prevent runs, sags, increases thickness of paint film.

"Gas-fired heaters are used in the two-pass bake oven."

the spray booths. Three separate and independent series of pumps, tanks and piping make up this compact installation. It is away from the booths, near a loading dock for easy handling and storage of paint drums.

DeVilbiss air-operated P-QBG pumps provide the pressure for this system. Two mixing and storage tanks are interconnected to a standpipe on which a pump is mounted. This provides a flexible arrangement: paint can be pumped from either tank, circulated and brought back to the same tank while the other tank is being used for mixing; paint can be pumped from one tank, circulated and returned to the other; or paint can be quickly pumped from one tank to the other. All pipe lines are equipped with paint filters, pressure regulators, back-pressure controls, and so on.

After the products have been painted they enter a pressurized tunnel that connects the second spray booth to the finish-bake oven. This tunnel protects the freshly-painted pieces from dust and provides a "flash-off" area for the reduction of solvents before work enters the oven.

Gas-fired heaters are used in the two-pass bake oven (Fig. 8), which can operate at temperatures up to 450 deg. F. It is built of 4-inch-thick prefabricated steel-faced, insulated panels. A double-pass oven, it provides approximately a 20-minute

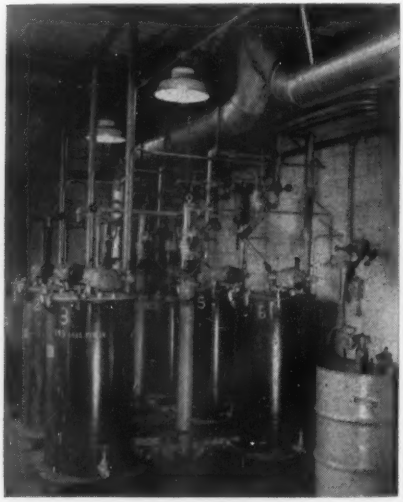


Fig. 6—Paint mixing room for three-line circulating system. Pumps, mixing tanks and drum agitator drive (lower right) are shown.

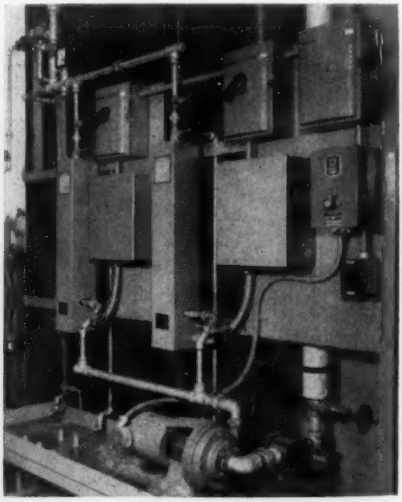


Fig. 7—Remotely mounted 24-kw. water heater installation to supply hot water to paint heaters mounted in spray booth.

baking time. Heat is uniformly distributed throughout the oven by the full-length supply ducts along each side. High-velocity nozzles are closely spaced in this supply duct to direct the heat down toward the floor. Pick-up ducts in the center of the oven roof return "used" air to the heater and vent system. Hot and cold spots in the oven are eliminated by adjusting the hot-air supply nozzles. They can be opened or closed as necessary to produce uniform heat distribution.

The oven entry and exit openings are protected against escaping heat by air seals. Centrifugal blowers take air from the oven and force it through narrow vertical slots to form a rapidly moving air curtain across the opening of the oven.

Fig. 8—Adjusting heat outlets in direct-fired gas oven. (Photos courtesy City Auto Stamping Company Div. of Globe-Wernicke Industries, Inc., and The DeVilbiss Co., Toledo.)

ELECTRO-POLISHING

Fast, low cost finish for aluminum, copper and alloys, steel and stainless steel. Ideal for decorative finishes, burr removal, electroplate adhesion and size control. Standard and custom concentrates nationally available in any quantity.

for Beauty, Economy, Speed

Let us convince you—send samples for processing.

Write for full data

ELECTRO-GLO COMPANY

625 S. Kolmar Ave., Chicago 24, Ill.

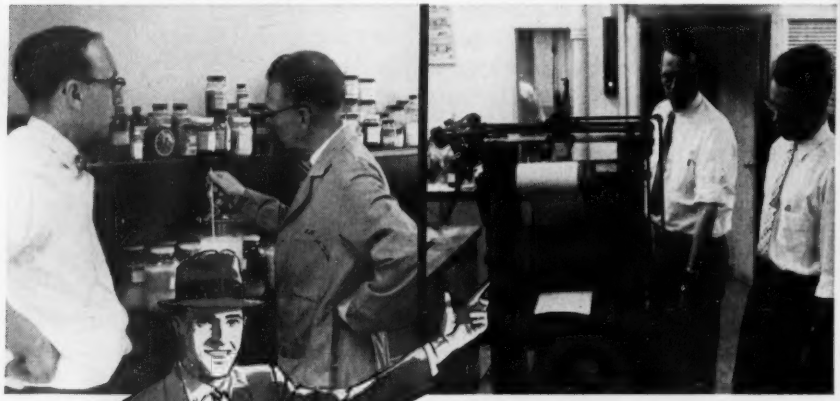
Electro-Glo

For more data circle 325 on Postpaid Card

RESEARCH DEVELOPMENT

Practically all of the advances in surface treatments for metals have come from the big, ingenious Parker research staff. This consultation is on a new treatment for hot dip galvanized.

An improved Parker product for use in laminating plastic to metal undergoes checks and tests in the development lab. Parker products are carried from test tube to production line by Development.



Here's why the are Parker's conversion

Start with the experience and knowledge of the field which has built the Parker line. Our restless search for new ways and better ways to protect metals and increase finish durability has been continuous for almost fifty years, and has produced practically every major advance in the science.

Add Parker's free engineering service. Our staff engineers have designed literally thousands of practical, money-saving surface treating installations. This no-charge service includes detailed drawings and specifications —complete data ready for you to turn over to equipment builders for bids.

FIELD SERVICE

The Parker field service representative, stationed near you, averages 14¾ years of experience in the conversion coating field.

TESTING SERVICE LABS

A corner of the testing labs, with the photomicrograph camera in use. Facilities include salt spray and humidity test rooms, outdoor exposure fields, equipment for all accepted testing procedures.

Customer Service Labs take your materials, treat them in Parker's $\$1/4$-million production line equipment, test the results obtained. Photo shows stock scheduled for 125'-long strip Bonderite machine.

biggest bargains in the business *coatings for your products*

Consider the qualifications of the Parker man who lives nearby and serves you. Our technical representatives have an average of $14\frac{3}{4}$ years of experience, equipping them to work with you and help you. They're practical, service-minded men, who bring understanding, ingenuity and dedication to you and your plant.

Back in Detroit, there are some 45 men working for you. These are our research and development people, manning the largest research program in the surface treatment field. Their discoveries of new processes, improvements and refinements are tested, proven, and passed on to you for your profit.

A $\$1/4$-million investment on your behalf is the production line Customer Service Lab. It's organized as an extension of your research and development program. Here we take your materials and treat them on a production line basis to work out the proper processing procedure, set time cycles, solve a cleaning problem, prepare material for experimental manufacture in your plant. All without charge.

For the low cost of the Parker chemical alone, you get this complete package of service and satisfaction. *It's the biggest bargain in the business.*

Parker Rust Proof Company
2172 E. MILWAUKEE, DETROIT 11, MICHIGAN

BONDERITE corrosion resistant paint base • BONDERITE and BONDERLUBE aids in cold forming of metals • PARCO COMPOUND rust resistant • PARCO LUBRITE—wear resistant for friction surfaces • TROPICAL—heavy duty maintenance paints since 1883

Since 1914... leader in the field

*Bonderite, Bonderized, Bonderlube, Parco, Parco Lubrite—Reg. U.S. Pat. Off.

For more data circle 349 on Postpaid Card

Fast-Dry Car

It dries in five minutes, can stand out in a downpour immediately without water spotting . . .

Paints that dry "dust-free" in five minutes are cutting auto-repainting time in shops across the nation. One of the first refinishers to use the new material is Earl Scheib, operator of 88 paint shops in cities from California to New England.

Scheib technicians working at the firm's Beverly Hills, California, headquarters developed the paint now being used by working with the technical service personnel from Archer-Daniels-Midland Company, producer of a new alkyd resin that is the heart of the unusual finish. Called Aroplaz 6006, the fast-drying alkyd resin is specifically tailored for use in industrial finishing and automotive refinishing.

Robert A. Smee, Western Division Supervisor for the Scheib chain, calls the new auto paint which the company makes for its own use "The best refinishing product I have ever seen." His reasons:

1. "Orange peel" effect is virtually eliminated. It used to be a source of customer complaints.
2. Fast dry minimizes danger of dust damage to new finish.
3. Fast "tape time" of the new finish permits two-tone jobs to be completed almost as quickly as single-color repaints.
4. Newly painted cars can be driven away in wet weather without fear of water spotting. This is especially important. Finishes formerly used had to be kept indoors for several days during wet weather to allow the finish to "age." This clogged production areas, sometimes resulted

SANDING OUT NICKS AND SCRATCHES is first step in standard refinishing procedure used in all Scheib refinishing shops.

Paint Speeds Refinishing

in rejects when a customer insisted on having his car in wet weather.

5. The new finish has less tendency to run and sag.

6. Fast dry makes it possible to sand out and repaint defective areas within minutes. Finishes formerly used required two weeks aging before repair could be attempted.

7. Paint particles blown through the shops' exhaust systems dry quickly, cannot spot objects on surrounding property.

8. High-flash-point solvents used in the paints lessen danger of fire.

9. Scheib formerly had to use various solvents for paints shipped to areas with different climates. Aroplaz-resin-based finish works satisfactorily with the same solvent in all climates.

Before converting entirely to paints based on Aroplaz 6006, technicians subjected the new product to some especially severe tests. They poured lighter fluid over a newly-painted fender, then set it afire. Nearly a minute later, when the fluid was completely consumed by the flame, they found the paint undamaged. They dashed water over a car five minutes after it emerged from the spray booth but were unable to water-spot the surface. The new paint has remarkable resistance to chipping and peeling.

Scheib operates 88 auto painting shops throughout the country. He paints about 50,000 cars a month, or nearly half a million a year, using a production line technique that is standardized throughout the company.

Autos move through stations, each manned by workers skilled in a particular phase of the operation. His shops, incidentally, use enough masking tape each year to circle the globe.

Regular spray equipment of the pressure and suction feed type is used. Water wash spray booths in each plant protect the operator and keep the air free of all foreign matter that might damage the finish.

From the spray booth the car goes

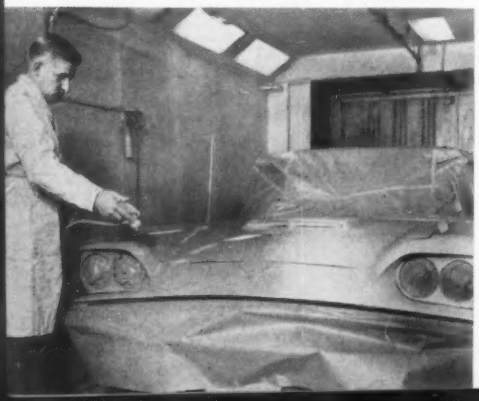
PRIMER IS APPLIED to areas where finish has been removed in sanding out nicks.

MASKING CHROME TRIM and other areas that are not to be painted is an exacting task, since a poor job results in more cleaning after vehicle emerges from spray booth.

directly into an infrared oven where a high-temperature bake further enhances the gloss and durability of the new finish.

After this, with the new Aroplaz 6006 paint, the car is ready for the road, regardless of weather. The customer receives a three-year written guarantee against fading and peeling, honored in any Earl Scheib Paint Shop from coast to coast.

SPRAYING AROPLAZ 6006 FINISH in water wash spray booth. Within five minutes after operator has finished, paint sets dust and tack free. After baking, new finish is not harmed by rain or other adverse weather conditions. (Photos courtesy Archer-Daniels-Midland Co., Minneapolis 2, Minnesota.)



Instrumentation for Treatment of Industrial Wastes. A compilation of article reprints from *Instrumentation* magazine. Offers case histories of how instruments are applied to industrial waste treatment systems to prevent stream pollution. The bulletin should be particularly helpful to anyone with a waste treatment problem, because it tells "how the other fellow does it." Write for Industry Bulletin B97-2. Minneapolis-Honeywell Regulator Co., Industrial Div., Wayne and Windrim Aves., Philadelphia 44, Pennsylvania.

★ ★ ★

Coatings for Protecting Molybdenum from Oxidation at Elevated Temperature. By E. S. Bartlett, H. R. Ogden, and R. I. Jaffee, Defense Metals Information Center, Battelle Memorial Institute, for Office of the Director of Defense Research and Engineering. 45 pages. Order PB 151064 from OTS, U. S. Department of Commerce, Washington 25, D. C. Price, $1.25.

Advantages and disadvantages of coatings developed to protect molybdenum from oxidation in high temperature applications are compared to aid in selecting the coating or combination of coatings most suitable for a particular application.

The protective coatings are presented from two points of view—the coating systems and the methods of application.

Chromium, silicon, nickel, precious metals, ceramic materials, and refractory oxides are among the systems discussed.

Methods of application include electroplating, flame spraying, vapor deposition, cladding, enameling, and liquid-phase diffusion.

SPEEDS THE **UNDERWOOD** WORLD'S BUSINESS

discovers KENVERT® 17A

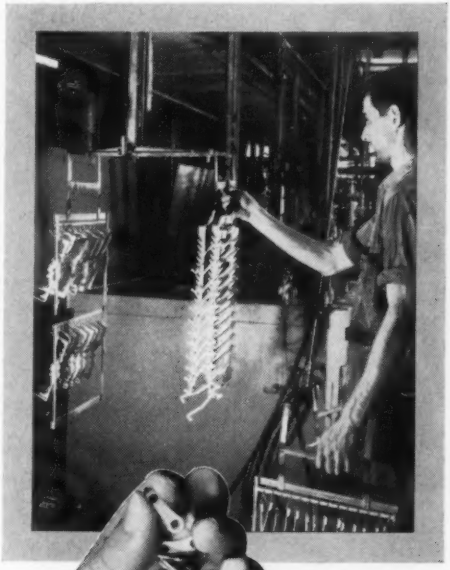
A bright new star has appeared in the chemical conversion coatings field. The Conversion Chemical Corporation has made tremendous strides in the development of new coatings that achieve maximum corrosion protection and brightness.

Underwood made their own bright dip for many years to insure high quality standards and substantial savings over products commercially available to them. Twenty-four hour salt spray corrosion protection as well as bright appearance is required by Underwood Laboratories for this application.

It came to the attention of Underwood Engineers that a product called Kenvert® 17A was reputed to show savings that were almost unbelievable while maintaining necessary high quality standards. Kenvert® 17A was evaluated in the laboratory, approved, and placed in production. Savings over Underwood's solution are now 68½%.

> On bulk work, chrome appearance, together with excellent corrosion protection has allowed Underwood to switch screw products from expensive nickel and chrome to zinc and Kenvert® 17A — the process of racking which was formerly required for many of these parts has been eliminated.

Due to the fact that the Conversion Chemical Corporation product line is complete in the chromating field, it has been able to satisfy many Underwood requirements in other applications such as: Kenvert® 32 for non-spotting or staining of brass hardware for carrying cases and Kenvert® 40 which is now used to replace anodizing with equivalent corrosion protection at substantial savings.



Because Kenvert 17A rinses so freely, flat parts do not stain in bulk treatment.

CONVERSION CHEMICAL CORPORATION

99 East Main St., Rockville, Connecticut
Phone: TRemont 5-3357
Licensees: Nicromatic Ltd., Toronto, Canada
Silvercrown Ltd., London E. C. 1, England

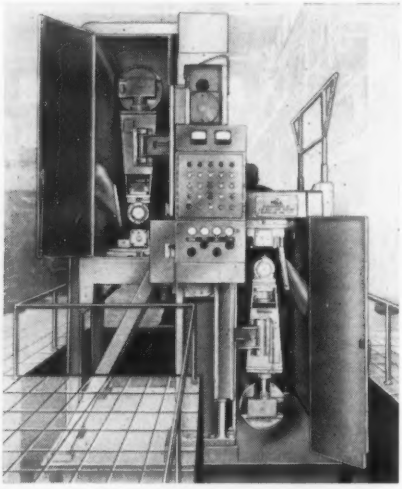
For more data circle 350 on Postpaid Card

new Equipment, Materials, Processes

Polishing, Buffing, Degreasing, Cleaning, Barrel Finishing, Plating, Anodizing, Phosphatizing, Baking, Vacuum Metallizing, Chromate Coating, Paint Finishing, Waste Treatment.

Double-Side Strip Grinding Machine

A machine designed to simultaneously grind both sides of 54-inch-wide stainless steel strip has been built by Hill-Acme Co. It eliminates the need for turning the coiled strip, as in the usual grinding operation. Two standard Hill 2-roll vertical abrasive belt grinding heads are used on this machine, described as the largest unit of this type ever built. One head is used in the normal position and one in the inverted position. Each head is driven by a 125 h.p. motor and uses a 56-inch-wide abrasive belt. Thirty-six inches of the machine are below floor level to reduce the pass line of the stainless strip. Total overall machine height is approximately 13 feet.



Hill-Acme Double-Side Strip-Grinding Machine: the world's largest of its type

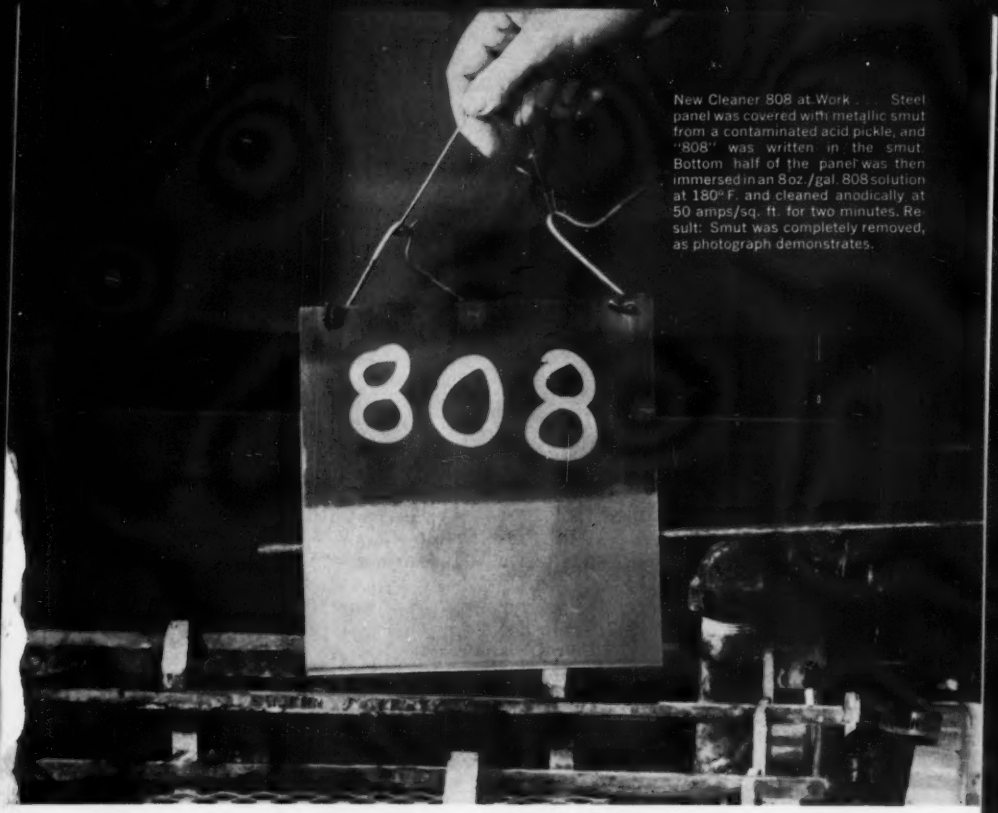
The vertically adjustable grinding heads are hydraulically operated to accommodate various thicknesses of material and to vary the pressure of the abrasive belt during the grinding operation. Automatic tension on the abrasive belt with continuous take-up for stretch is provided.

Rubber-covered guide rolls on either side of the machine aid in guiding the strip and provide proper tension to help flatten the work by "breaking it" over the pressure rolls. This "breaking" action ensures full-width effectiveness of the abrasive belt.

The Hill Double Side Strip Grinder is recommended by the manufacturer for removing imperfections prior to cold rolling operations and for final finishing of coiled strip. With modifications it may be adapted for use as a "feed roll" type machine, processing cut strips with a minimum length of 5 feet.

Manufacturer: Hill Acme Co., 1209 W. 65th St., Cleveland 2, Ohio.

For more data circle **131** on Postpaid Card



New Cleaner 808 at Work . . . Steel panel was covered with metallic smut from a contaminated acid pickle, and "808" was written in the smut. Bottom half of the panel was then immersed in an 8 oz./gal. 808 solution at 180° F. and cleaned anodically at 50 amps/sq. ft. for two minutes. Result: Smut was completely removed, as photograph demonstrates.

For Steel . . . **NEW CHELATING ELECTRO-CLEANER**
Removes Light Rust, Scale, Smut, Oxides

Cleaner 808, a new development of Enthonics research, is an alkaline electro-cleaner with chelating action. Its selective chelating agents chemically encircle and remove smut, oxides, light scale and rust. Its high-detergency, high-conductivity ingredients complete the cleaning job. Result: Bright surfaces completely free of contamination.

Cleaner 808 is excellent for anodic cleaning of steel which has just enough rust or scale to defy conventional electro-cleaners. In most applications, by using the work as an anode at current densities of 50-75 amps/sq. ft., cleaning time is 1 to 5 minutes.

Cleaner 808 also is being used cathodically. One such application: Cleaning used automobile bumpers for replating.

Cleaner 808 is a dustless, free-flowing alkaline powder with superior wetting, penetrating and dispersing characteristics, and water softening action. A low foam blanket minimizes spray and hydrogen gas explosion. Because oils are displaced and float to the surface, the cleaning solution is free of contamination, has long life.

For complete information about Cleaner 808 with chelating action, write to Enthone, Inc., 442 Elm Street, New Haven 8, Conn.

ASARCO

ANOTHER PRODUCT OF *Enthonics* RESEARCH

ENTHONE

A Subsidiary of American Smelting and Refining Company

For more data circle 351 on Postpaid Card

Lab-Model Fluidized-Bed Coater

Lab-Model Fluidized Bed Coater

A laboratory-model fluidized-bed coating unit has been introduced by Michigan Chrome & Chemical Co.

The Research Fluidizer is useful in evaluating resins for use in the fluidized-bed coating process. A gallon of resin is sufficient to operate the unit, thus cost of purchasing resins for evaluation is reduced.

Michigan Chrome's small fluidizer consists of a clear plastic cylinder which is divided into an operating section and a plenum chamber by a special diffusion plate.

Manufacturer: Michigan Chrome & Chemical Co., 8615 Grinnell Ave., Detroit 13, Mich.

For more data circle **132** on Postpaid Card

★ ★ ★

Cleaner and Brightener for Aluminum

A product which cleans and brightens aluminum in one application is being marketed by Clarkson Laboratories, Inc.

Clarco 2200 cleans truck and bus bodies, aircraft, large aluminum surfaces used in buildings, storm sash and screens and other aluminum surfaces.

It is applied by brush, allowed to dry for one to two minutes, and rinsed, leaving an oxide-free surface.

Manufacturer: Clarkson Laboratories, Inc., 930 N. Darien St., Philadelphia 23, Pa.

For more data circle **133** on Postpaid Card

The Vibraslide Finisher's new Vibrating-Rotating action is bringing the best results yet achieved in barrel finishing . . . . faster, and at a fraction of previous costs.

newest method in barrel finishing!

ELLIOTT
VIBRASLIDE
BARREL FINISH EQUIPMENT

. . saves time, cuts cost, better results

Vibraslide finishes forgings, castings, machined parts and stampings up to four to eight times faster than other tumbling methods . . . . recessed areas and internal surfaces are smoother, more lustrous . . . . distortion, impingement damage, nicking and scratching are reduced to the minimum.

In two short years, Vibraslide machines have replaced or augmented barrel finishing equipment in some 80 leading industries.

mf Equipment co.
410 Frelinghuysen Ave.
Newark, N. J.

Call or Write for Demonstration Bigelow 2-6211

For more data circle 352 on Postpaid Card

HOW ONE GRADE DOES TWO JOBS

Nialk® MD Grade Trichlorethylene is pure enough for flushing missile components and low enough in cost for degreasing. That's because we've made it non-impact sensitive in the presence of liquid oxygen and because we've held residue on evaporation to 0.0005% max.

Because one and not two grades is needed, you cut your inventory, lower your costs, avoid mistakes.

Another thing that makes Nialk Trichlorethylene so good is PSP (permanent staying power). A neutral stabilizer system protects against heat, air, light, moisture, acids and active metals. It can't wear out, doesn't let your solvent go sour.

If you would like complete information on Nialk Trichlorethylene, ask for Bulletin 44A and Data Sheet 814. Meanwhile, why not try a few drums (or a tank car) of Nialk brand. You will find that your trichlor dollars buy more at Hooker.

Nialk® Trichlor, a product of

HOOKER CHEMICAL CORPORATION

1407 Union Street, Niagara Falls, New York

HOOKER CHEMICALS PLASTICS

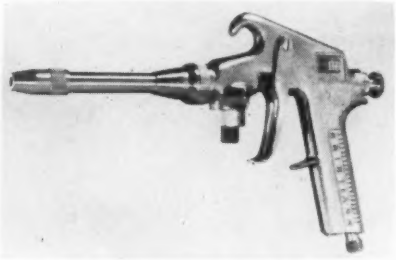
Sales Offices: Buffalo Chicago Detroit Los Angeles New York Niagara Falls Philadelphia Tacoma Worcester, Mass.
In Canada: Hooker Chemicals Limited, North Vancouver, B. C.

For more data circle 353 on Postpaid Card

Spray-Cleaning Gun

A high-velocity pressure-type spray-cleaning gun for use in factories, foundries and maintenance shops has been developed by The DeVilbiss Company.

The CGA-504 gun delivers a driving spray, which knocks off dirt and provides coarse, hard-hitting drops to penetrate built-up films. It can be adjusted, however, for any type spray down to a gentle mist.



High-Pressure Spray-Cleaning Gun

The extension nozzle permits spraying into cavities and other hard-to-reach areas and an adjustment on the gun permits a quick change of the amount of material being sprayed. The gun can be used with all common cleaning and degreasing materials.

Manufacturer: The DeVilbiss Co., Toledo 1, Ohio.

For more data circle **134** on Postpaid Card

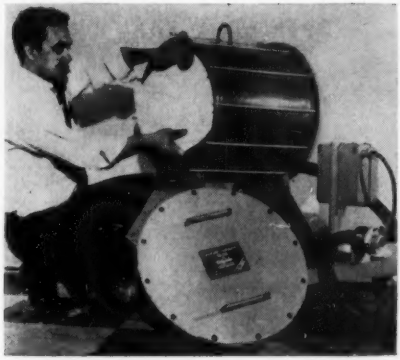
★ ★ ★

Side-Opening Filter for Electroplating Solutions

An easy-to-maintain filter that opens from the side instead of the top for cleaning and service has been introduced by the Udylite Corporation. Mounted on its own base, the filter is a portable unit. It removes solids and chemical contamination from nickel, copper, cadmium and zinc plating solutions.

The Udylite Series 60 filter operates at low pressures and low speeds. Hol-

For more data circle 354 on Postpaid Card



Udylite Side-Opening Plating-Solution Filter

low filter plates set vertically in the machine provide enough filtration area to permit operation at lower pressures and speeds with no loss in efficiency.

When cleaning is necessary, all plates can be removed quickly from the side opening.

Depending on the size, the filters use positive-displacement or centrifugal pumps that develop a maximum pressure of 28 p.s.i. The pumps and motors are mounted on the base with the filter and are readily accessible for servicing.

Manufacturer: Udylite Corporation, 1651 East Grand Blvd., Detroit 11.

For more data circle **135** on Postpaid Card

★ ★ ★

Ultrasonic Generator

National Ultrasonic Corporation has introduced a one-kilowatt ultrasonic generator (Model G-310) which is rated at an output of 1000 watts average power and 2000 watts peak power at 38 to 42 kc. It will drive 192 square inches of barium titanate crystal radiating surface. The generator is recommended for conveyorized, batch or manual production-line cleaning and degreasing; pilot-plant testing of large-scale cleaning operations; or for adding ultrasonics to a conventional vapor

(continued)

HARPER BUFFING MACHINE CO.

EAST HAMPTON • CONNECTICUT

For more data circle 355 on Postpaid Card

NO BUFFS NO FIXTURES

80% Savings on Labor and Materials by present users — same for short and long runs.

HI-G-Free Grain-ACTION can produce similar savings on over half the jobs now buffed.

FINISH—Equal or superior to Buffing. Intricate detail and complicated shapes preserved.

RANGE — All Metals — Most Plastics; sizes from watch screws to headlamps —

You can finish better for less with the HARPERIZER.

In addition, manufacturers of the finest automatic machines using wheels and fixtures to buff, deburr and polish.

Ask for a Demonstration
Write or Phone (ANdrew 7-2553)

HARPERIZER

WHY PAY FOR MORE RECTIFIER THAN YOU NEED?

Now, H-VW-M takes the costly confusion out of rectifier design, by reducing *hundreds* of variations — in diodes, protective devices and controls — to *four basic models*, standardized to meet *specific* needs. You save on initial cost *and* on maintenance! Here are the four basic H-VW-M rectifier types, and some of their important features . .

1. The H-VW-M General Plating Step Control Rectifier
Uses only *one* transformer, not the usual two. Result: high efficiency, lower price. And, H-VW-M has *doubled* the average control accuracy, offering *44 steps* instead of 22.

2. The H-VW-M Barrel Plating Rectifier
This exclusive H-VW-M design uses only the *top-half* of the voltage range — the range you need for higher-voltage barrel processing. You get a high power factor unit with precise 22-step control, and can save as much as 5% on purchase price alone!

3. The H-VW-M Anodizing Rectifier
Automatic surge protection is a *built-in feature* of this specialized design: you can simply set it, and forget it!

4. The H-VW-M General Plating Automatic Stepless Control Rectifier
Unit offers accurate control to 1% of setting. Reliable and sturdy—built to rugged steel-mill requirements for low maintenance costs.

Find out more about all four basic types of H-VW-M *Standardized* Rectifiers, offering many exclusive features and advantages — including complete protection systems. Write today to:

Hanson-Van Winkle-Munning Company, Matawan, New Jersey • Offices in Principal Cities.

Alert Supply Company is H-VW-M in the West. Los Angeles • San Francisco.

H-VW-M

Progress in metalfinishing through advanced processes • equipment

For more data circle 356 on Postpaid Card

About other H-VW-M electrical equipment

NOW — GENERATOR BRUSH OVERLOAD ELIMINATED

A new H-VW-M Equaload Brush makes overloading impossible. Result: Commutators can now last the life of generators — without resurfacing.

A braided nickel shunt on the new Equaload Brush completely eliminates unequal current distribution because nickel's resistance to current flow increases proportionately with temperature rises.

When any brush accepts more than its proportional share of current, the temperature of the shunt rises, its resistance increases and current is immediately distributed equally among the other brushes.

Use of a braided nickel shunt is *exclusive* with H-VW-M. The new H-VW-M Equaload Brush is designed to fit all makes of DC generators.

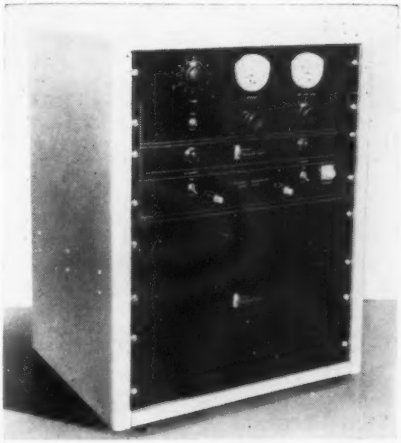
H-VW-M Form "A" Tank Rheostats — Designed to eliminate all switch failures caused by excessive heating. Standard sizes available with ratings from 30 to 1000 amps. Larger sizes to 5000 amps can be furnished.

H-VW-M Universal Carbon Pile Tank Rheostats — Provide continuous voltage control from fixed plating line voltage source in ranges to 250 amps, 6 to 12 volts.

H-VW-M Motor Generator Sets — Available up to 50,000 amps. Standard voltage ratings are from 6 to 250 volts.

H-VW-M H-VW-M H-VW-M

For more data circle 357 on Postpaid Card



National Ultrasonic's One-Kilowatt Generator

degreaser or other cleaning equipment.

The unit operates on 115 volts at 20 amperes. Two vacuum tubes supply power.

Manufacturer: National Ultrasonic Corporation, 111 Montgomery Ave., Irvington, N. J.

For more data circle **136** on Postpaid Card

★ ★ ★

Self-Powered Spray Gun

The Arco Company has introduced a self-powered spray gun that's useful for production-line touch-up and stenciling as well as plant maintenance.

Intended as a permanent, reusable tool, the "SpraZall" unit has no compressor, no hose, no electric wire. A replaceable can of

Reusable Aerosol Sprayer

(continued)

non-flammable, non-toxic propellent gas disperses any liquid of the right consistency in a fine mist spray at the touch of a button.

Manufacturer: The Arco Company, 7301 Bessemer Ave., Cleveland 27, Ohio.

For more data circle **137** on Postpaid Card

★ ★ ★

Powdered Chromates

Allied Research Products, Inc., has introduced several powdered products which dissolve in water to make Iridite chromate coating solutions.

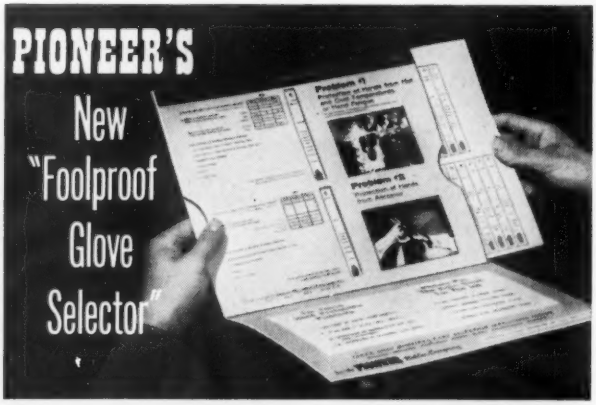
The Iridites are designated as No. 1P, No. 7P and No. 11P.

Iridite No. 1P is a powdered version of the original Iridite No. 1 (olive drab) which was developed in 1943 as a corrosion-resistant finish for zinc and cadmium military products. This powdered compound provides the same corrosion protection, paint adherence and final finish as its liquid counterpart, but offers easier solution control. A dark green, olive drab film is produced on zinc plate. The film on cadmium plate is similar, but has a brown cast.

Iridite No. 7P is a powdered form of another liquid Iridite. It protects and decorates products made from cuprous alloys. Unlike its liquid counterpart, this material protects against corrosion and tarnish while chemically polishing cuprous surfaces. Heavy-duty films can be produced or the material can be used merely for mild passivation.

The third Iridite formulation is designated No. 11P. It provides a

(continued)



ELIMINATES COSTLY ERRORS!

Helps you solve many hand protection problems in seconds — whether the problem involves chemicals, abrasion resistance, worker fatigue, extreme hot or cold temperatures, or products that must be protected from hands!

Send For PIONEER'S *FREE* "Foolproof Glove Selector"

The PIONEER Rubber Company
285 Tiffin Road, Willard, Ohio (5)

Please send me:

- ☐ New "Foolproof Glove Selector" by Pioneer
- ☐ 1959-60 Pioneer Industrial Glove Catalog
- ☐ 17" x 22" Full Line Glove Wall Chart

Firm _____

Address _____

City _____ Zone ___ State _____

Requested by _____

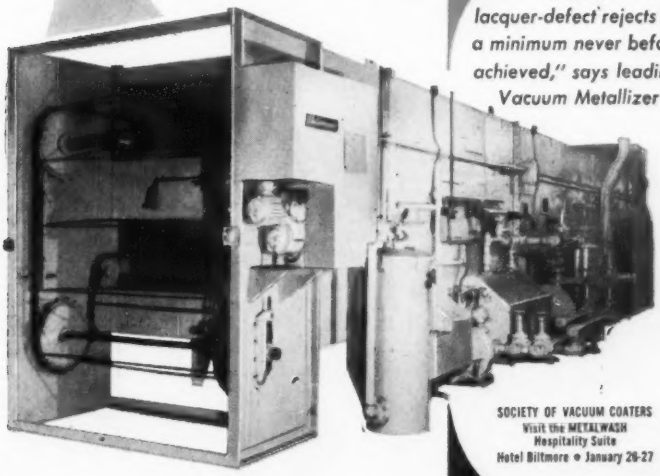
For more data circle 358 on Postpaid Card

FOR THE BEST IN **VACUUM METALLIZING**

Metalwash® Automated Finishing Systems

For Absolute Cleanliness and For Perfect Lacquer Base Coatings

"Reduce lacquer-defect rejects to a minimum never before achieved," says leading Vacuum Metallizer



SOCIETY OF VACUUM COATERS
Visit the METALWASH
Hospitality Suite
Hotel Biltmore • January 26-27

The Metalwash Automated Finishing System is unsurpassed in the Vacuum Metallizing industry.

Perfected by Metalwash engineers in close co-operation with METAPLAST PROCESS, Inc., Woodside, L. I., N.Y., one of the foremost Vacuum Metallizers, it

- Removes all dust, lint and de-greasing residue from the product.
- Provides 100% ten-micron filtration of solvents and lacquer.
- Flow-coats a perfect lacquer base coat, free of bubbles or runs.
- Polymerizes lacquer base coat at safe, controlled temperatures.
- Delivers the cooled product back to the loading station, ready for metallizing.

This Automated Finishing System for Vacuum Metallizing preparation is an example of what METALWASH engineering experience and skill can do for you.

FAST / Delivers one rack of work per minute.

ECONOMICAL / Only two men needed to operate.

SAFE / Approved by safety boards.

COMPACT / Integrates all pre-metallizing operations into one unit.

Write today for free detailed information and schematic drawings of this and other new METALWASH systems which have proved their superiority in solving industrial parts processing problems

Metalwash® Machinery Corporation

Established 1926
940 North Ave Elizabeth 4 N. J.

For more data circle 359 on Postpaid Card

designated No. 11P. It provides a clear, white, bright protective and decorative film on zinc plated surfaces. The film can be dyed to provide a variety of pastel shades. Iridite No. 11P films can withstand transfer times of up to 30 seconds without changing appearance and dye receptivity.

Manufacturer: Allied Research Products, Inc., 4004-06 E. Monument St., Baltimore 5, Md.

For more data circle **138** on Postpaid Card

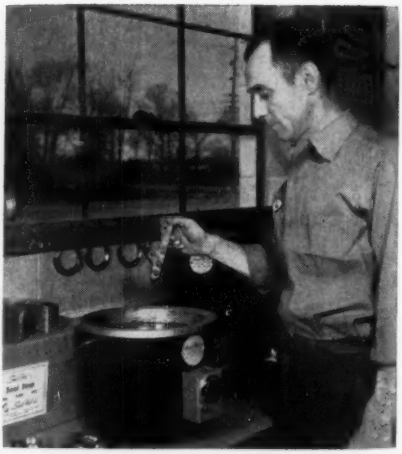
★ ★ ★

Peelable Coating for Use as Stop Off in Shot Peening

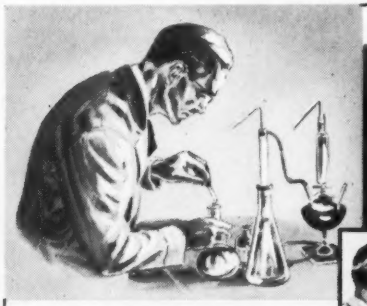
Cost of masking metal parts prior to shot peening can be reduced by using a product called Seal-Stop, according to Seal Peel, Inc., manufacturer of this material.

Parts to be partially shot peened are simply dipped in the molten Seal-Stop and withdrawn a few moments later. This plastic coating solidifies within

(continued)

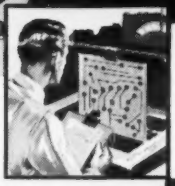


Seal Stop: peelable coating for masking metal parts before shot peening operations



Rhodium

ELECTROPLATING SOLUTIONS



Backed by 59 Years of Specialization

SINCE 1901

Rhodium, hard and very corrosion-resistant, is an excellent electrical contact material.

Its use is suggested on printed circuits, wave guides, and electrical contacts where light contact pressures, low voltage, and intermittent service are involved.

This Rhodium plating solution is easy to use. It operates over a wide range of temperature and current densities. We will be glad to plate samples without charge.

Consult our staff about plating problems.

SIGMUND COHN MFG. CO., INC.
121 SOUTH-COLUMBUS AVE.
MOUNT VERNON, N.Y.

For more data circle 360 on Postpaid Card

"T" BONE NICKEL ANODES offer you 40% MORE AREA

PER POUND OF ANODE

THAN OVALS!

WEIGHT: 1 lb. 3 oz. per inch
LENGTHS: From 3" to 103"

UNIVERTICAL CORPORATION

14841 MEYERS ROAD • DETROIT 27, MICHIGAN

BRoadway 3-2000

For more data circle 361 on Postpaid Card

60 seconds. It is then quickly trimmed or peeled away from the parts to be shot peened. After peening, the remaining coating is stripped off, rinsed, dried and returned to the melt tank for reuse. The ease of removal and the fact that Seal-Stop can be reused have enabled companies to realize substantial reductions in costs, Seal-Peel reports.

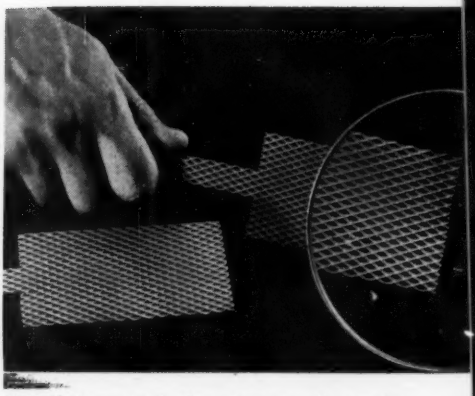
Manufacturer: Seal-Peel, Inc., 775 Stephenson Highway, Royal Oak, Michigan.

For more data circle **139** on Postpaid Card

★ ★ ★

Platinum-ized Titanium Mesh for Insoluble Anode Applications

A platinum-ized titanium-mesh anode that's said to be equal functionally to solid platinum has been developed by Sel-Rex Corporation. Cost is less than one-fourth of solid platinum.



The Platinum-ized titanium-mesh anode shown above is used in electroplating, refining and chemical processing operations. It's said to do the job of solid platinum anodes for one-tenth the cost of solid anodes

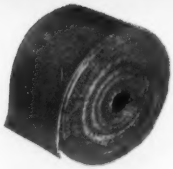
Trade-named the Platanium Anode, this product is manufactured from titanium-mesh coated with a uniform

Bond® TACK CLOTH for a SPECK-FREE FINISH EVERY TIME!

SAVE TIME AND WORK WITH BOND TACK CLOTHS — NOW AVAILABLE IN HANDY ROLLS OR CUT BULK—WHITE OR GOLD —IN FOUR DIFFERENT TYPES OF CLOTH

Get your Tack Cloth packed just the way it's easiest for you to use . . . either in 150 yard rolls of 36″ wide cloth or in handy cartons . . . 100 or more Tack Cloths to the carton.

No matter which way you buy it, you can be sure that every square inch will stay SOFT and TACKY until the very last bit is used up! The Cut Bulk size is 18″ x 36″ . . . folded to 4½″ x 18″ or 9″ x 18″ for ease of handling. ALL BOND TACK CLOTH is Spontaneous Combustion Proof, Lint-Free, and Wax-Free. Gives a sparkling speck-free Finish every time. Clean and Sanitary. No waste. Choice of Standard, Extra Tacky or Less Tacky.



IN ROLLS
Cut off any size piece to use as needed.

IN BULK
Cut and folded. Ready to use.

TRY THEM AND COMPARE RESULTS.
Samples Gladly Sent Upon Request.

Bond® CHEMICAL PRODUCTS CO. 2639 N. CLYBOURN AVE. CHICAGO 14, ILLINOIS
"The Tacky Wiper Specialist"

ALSO INDIVIDUALLY PACKED IN GLASSINE ENVELOPES—144 TO THE CARTON.
A WARRANTY OF SATISFACTION IN EVERY CARTON.

For more data circle 362 on Postpaid Card

thickness of platinum metal deposited by the Sel-Rex Platanex Process. The titanium mesh is of a diamond configuration which, it is stated, affords maximum anode area while cutting down over-all size 50 per cent.

Sel-Rex recommends these anodes for use in a wide range of electrolytic operations — from electroplating to refining and chemical processing— wherever insoluble anodes are used.

Manufacturer: Sel-Rex Corporation, Nutley, N. J.

For more data circle **140** on Postpaid Card

★ ★ ★

Aluminum Etchant

A recently introduced powder that is dissolved in water to make an aluminum etchant contains special sequestering agents. Result is improved process control, according to DuBois Chemicals, Inc., the manufacturer of this product.

Etchant A-612 is said to produce less scale and sludge and to permit better control of smut formation. It operates under a controlled foam blanket.

Manufacturer: DuBois Chemicals, Inc., 634 Broadway, Cincinnati 2, Ohio.

For more data circle **141** on Postpaid Card

★ ★ ★

Electronic Device That Compensates for Worn Buffs

Packer Machine Company has introduced a device that compensates for buff or wheel wear in high-production installations. The device is said to reduce wear, improve uniformity of the finish produced and lower compound consumption.

Called the Adjusta-Matic, the electronic mechanism is included on all

(continued)

SPRA-CON
COMPLETE FINISHING SYSTEMS
POWER SPRAY WASHERS
DRYING OVENS
PAINT BAKING OVENS
FLOW COAT MACHINES
AIR REPLACEMENT SYSTEMS
CONVEYORS
SEND FOR FREE CATALOG
the SPRA-CON COMPANY
3600 ELSTON AVE. • CHICAGO 18, ILLINOIS
For more data circle 363 on Postpaid Card

new Packer-Matic machines, can be installed easily on units now in use.

The device operates by measuring amperage and automatically adjusting the buff as the amperage varies. Limits of operation are preset by the user.

Manufacturer: Packer Machine Co., 456 Center St., Meriden, Conn.

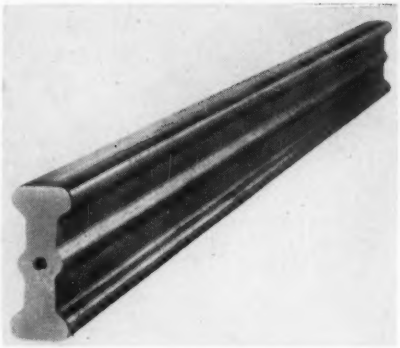
For more data circle **142** on Postpaid Card

★ ★ ★

"T-Bone"-Shaped Nickel Anode

A "T-Bone"-shaped nickel anode recently introduced by Univertical Corporation is said to reduce sludge formation and keep surfaces of both anode and cathode exceptionally smooth during the electrodeposition process. It is suitable for use in nickel sulfate-nickel chloride or all-chloride nickel plating baths.

The anode is essentially pure nickel, with the normal quantities of impurities present in commercially refined nickel; a few thousandths of a per cent of boron and zinc are added to bring the total quantity of boron and zinc up to 0.01 per cent.



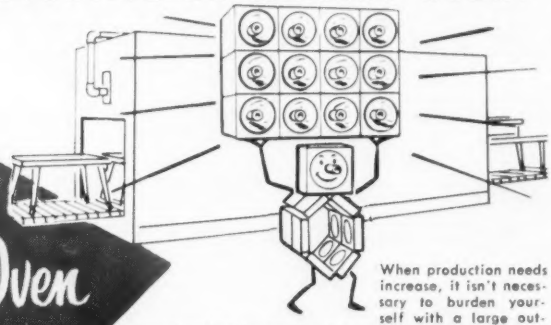
Univertical's "T-Bone"-Shaped Nickel Anode

During electrodeposition, using a solution violently agitated by

(continued on page 114)

Not enough OUTPUT FROM YOUR PRESENT CONVECTIVE OR RADIANT OVEN?

adding a small **driQuik** INFRA-RED *Booster Oven* often DOUBLES production

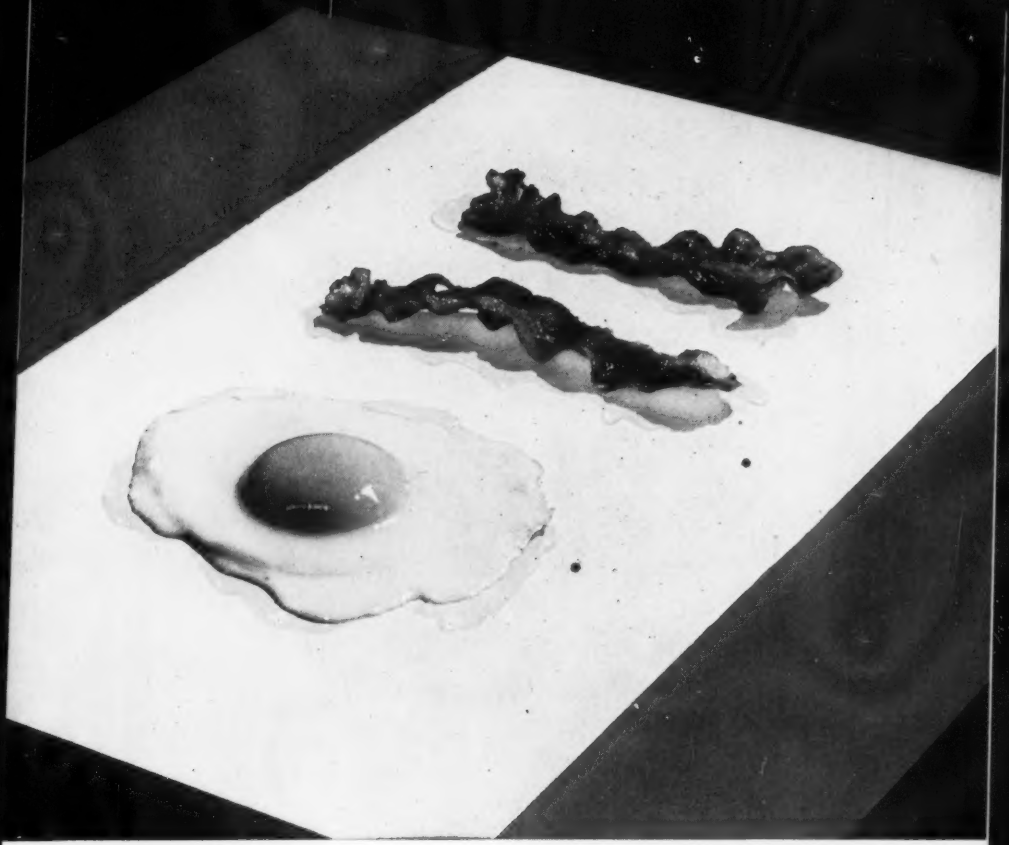


When production needs increase, it isn't necessary to burden yourself with a large outlay of capital for another big oven. A low-cost dri-Quik booster oven teamed with your present equipment will do wonders. In addition, it is flexible . . . temperature can be changed with the turn of a knob for different types of products. The booster oven can be any size or shape. *Write today for complete information.*

driQuik DIVISION

DRY CLIME LAMP CORP.
GREENSBURG, INDIANA

For more data circle 364 on Postpaid Card



Hot grease can't cook this finish

Fry food on a griddle coated with a metal products finish? It was in this case—an extreme test which proved it could be done without harming the Glidden finish.

In standard laboratory tests for grease resistance, a Glidden finish remained unaffected in gloss, color, adhesion or hardness even after three days' exposure to one-to-one oleic and cottonseed oils.

Tests like these are common at Glidden for determining abrasion, impact, humidity, heat, cold, corrosion as well as grease resistance of paint products. That's why Glidden technologists can make a positive recommendation of a finish for any unusual conditions which your product or products may be subjected to.

Your Glidden salesman is prepared to give you full information on the best Glidden finishing system to meet your particular requirements.

QUALITY Glidden PRODUCTS

FINISHES FOR EVERY PRODUCT

The Glidden Company
INDUSTRIAL PAINT DIVISION
900 Union Commerce Bldg., Cleveland 14, Ohio
In Canada: The Glidden Company, Ltd., Toronto, Ont.

No matter what your product, process or problem, Glidden Finishes plus Glidden Technical Service can provide the answer.

For more data circle 365 on Postpaid Card

NEW FROM DU PONT

DUROBRITE®

ADDITION AGENT 26

Flexible polyethylene spout permits easy pouring and measuring . . . pops back into metal drum when not in use.

a high-performance brightener

Du Pont's "Durobrite" Addition Agent 26 is a new liquid brightener specially developed for high-quality barrel zinc plating . . . offers you these advantages:

EXCELLENT STABILITY. "Durobrite" Addition Agent 26 stays effective longer. It produces bright plates even at bath temperatures as high as 110°F. Brightening effectiveness continues during idle periods so there's no need to add large amounts of brightener after weekend shutdowns. Decrease in brightening activity in the bath is gradual . . . minimizing rejects and the necessity of reprocessing parts.

NO BRIGHT DIPPING. You can obtain any predetermined degree of brightness—up to full liquid brightness—without bright dipping.

LOW USE COST. Extensive field tests indicate that the high stability of "Durobrite" Addition Agent 26 makes it economical to use . . . you use less brightener and plate more parts.

CONVERSION COATINGS. Deposits are highly suitable for use with chromate conversion treatments.

CONVENIENT LIQUID FORM. An easy-to-use liquid, "Durobrite" Addition Agent 26 may be added to the bath "as is" or as a diluted stock solution.

HANDY CONTAINER. Convenient polyethylene-lined metal container (40 lb. net) has handy utility spout which allows easy pouring and measuring (see above). Spout pops back into container for easy storage.

High-quality brightness and excellent coverage are obtained with new liquid "Durobrite" Addition Agent 26.

...for barrel zinc plating

Other Brighteners in Du Pont's Plating Chemical Line. "Durobrite" Addition Agent 26 rounds out Du Pont's complete line of high-quality zinc brighteners:

"DUROBRITE" ADDITION AGENT 309—An extremely economical brightener (liquid form) for cyanide zinc solutions. Small amounts give a bright, uniform, lustrous plate.

"ZIN-O-LYTE" BRIGHTENER—Widely used powder form ... gives brilliant blue-white zinc plating without bright dipping.

"ZIN-O-LYTE" SPECIAL—An economical brightener (powder form) for barrel plating that gives bright deposits without bright dipping.

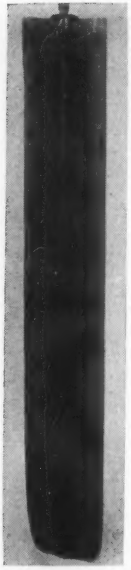
Whatever your requirement may be, Du Pont zinc-plating brighteners will give you bright, uniform deposits of the finest quality. For more information on new "Durobrite" Addition Agent 26 or other Du Pont brighteners, call your nearest Du Pont distributor or district office, or write: Du Pont, Electrochemicals Department, Sodium Products Division, Wilmington 98, Delaware.

DU PONT

REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING ... *THROUGH CHEMISTRY*

For more data circle 366 on Postpaid Card



After anode has been in use for considerable period of time it is spade-shaped, still has comparatively large surface area. Note film that covers anode, helps prevent impurities' entrance into solution.

air, these anodes acquire a dense, dark brown film which adheres tenaciously to the surface of the anode. This film restricts migration of carbon, silicon and residual solid impurities into the solution. Amount of undissolved nickel in the plating solution is kept to a minimum. Both the anode and the deposit are exceptionally smooth. No anode bags are required.

The shape of this anode results in additional anode area in the sections of the anode where erosion normally takes place—corners. Weight is not materially increased, however.

The "T-Bone"-shaped anodes are said to permit use of higher current densities and lower voltages.

The "T-Bone"-shaped anodes finally erode into a thin, flat, spade-like section, constantly maintaining more area than conventional anodes. The thin, flat shape which is produced during consumption of this anode also has the advantage of gently settling to the bottom of the bath in the event of a break, rather than spearing through the solution in a fast plunge that stirs up the solution.

According to the manufacturer, use of these anodes results in production of a deposit that is significantly smoother.

Manufacturer: Univertical Corp., 14841 Meyers Rd., Detroit 27, Mich.

For more data circle **143** on Postpaid Card

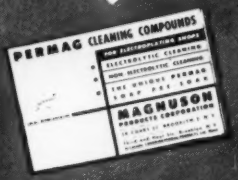
Did You Get Your Copy of This... HANDY DIGEST OF ALL CLEANING OPERATIONS ON THE JOB?

CONTAINS LATEST INFORMATION ON:

- Removing Buffing Compound
- Electrolytic Cleaning
- Selection for Alloys
- The Unique Soap Pre-Soaks
- Solvents and Emulsions

MAGNUSON PRODUCTS CORP.
Executive Offices:
50 COURT ST., BROOKLYN 1, N. Y.
In Canada: Canadian PERMAG Products, Ltd., Montreal

YOURS FREE!



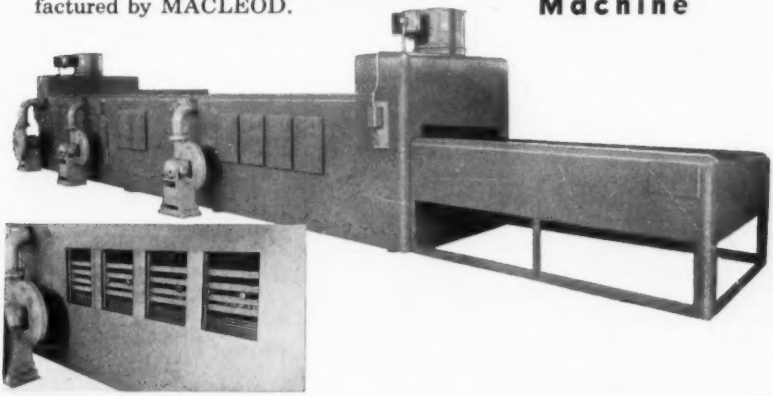
Send for your free "vest-pocket" reference for both electrolytic and non-electrolytic cleaning requirements.

For more data circle **367** on **Postpaid Card**

MACLEOD
CUSTOM-DESIGNED METAL CLEANING and FINISHING EQUIPMENT

A leader in the blast cleaning equipment field for more than 63 years, MACLEOD is fast acquiring an outstanding reputation for "top-quality product" in its expanded new line of metal processing equipment. The wash and rinse machine shown here is typical of the metal finishing equipment manufactured by MACLEOD.

MACLEOD
Belt Conveyor Type
WASH and DOUBLE RINSE
Machine



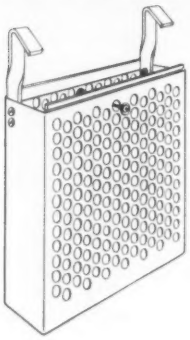
Shown above is a MACLEOD slanting, belt-conveyor-type, 3-stage wash and double rinse machine with intermediate high pressure blowoffs. This machine designed for hot iron phosphate wash, cold water rinse, and hot chromic rinse, can handle sheets 5 ft. wide by 10 ft. long, and channel sections 20 ft. long. Special provision is made to hold solution intercontamination to a minimum by tilting conveyor belt to provide almost instant runoff, and by means of a high-pressure blowoff after each processing stage. Fumes from each blowoff are exhausted through a special system built into the machine. The large number of access doors on the one side of the machine and the cleanout extensions on the other, permit fast, easy cleaning of tank interiors. Spray pipe removal and nozzle adjustment is quickly handled through the access doors.

Let MACLEOD engineers plan your metal cleaning installation

The MACLEOD Company
119 MOSTELLER RD., CINCINNATI 41, OHIO • EST. 1897

For more data circle 368 on Postpaid Card

All-Titanium Anode Basket



Titanium Basket

An all-titanium anode basket is now being produced by LeVita Industries, Inc.

The basket comes in three sizes: 3 by 12 by 12 inches, 3 by 12 by 18 inches, 3 by 12 by 24 inches. It is priced at 30 per cent less than similar baskets made by LeVita of expanded titanium metal. The basket is useful as a nickel anode "scrap saver," has an almost indefinite life in most acid plating solutions.

Manufacturer: LeVita Industries, Inc., 3125 E. Larned St., Detroit 7.

For more data circle **144** on Postpaid Card

Small Chromium Plater

A "packaged" chromium plating unit is designed for use in chromium plating mis-machined and worn tools. The unit is economical, includes power unit, tank and blower. It can be operated by personnel with a minimum of training, according to Krome King Div. of National File Co.

A "time-dimensional" control method which is explained by simple charts included with the unit closely regulates deposit thickness. Thickness of 0.0001 inch is deposited on outside diameters in two minutes' plating time.

The Krome King unit has a plastic tank with lead sheet anodes, is mounted in a metal cabinet.

An attachment recently introduced by the manufacturer includes a hoist which raises and lowers a plastic-coated table into a self-controlled hard chrome solution. This table holds the parts and acts as a current deflector

(continued)

for the "Solution to your Plating Problems" . . . . come to

JELCO

One of America's leading manufacturers
- BRASS Additive
- COP-BRITE
- BARREL COPPER Brightener
- BARREL NICKEL Brightener

Now- **SPEED** *plate in brass with your present solution!*

BRASS ADDITIVE . . . for still & barrel plating

- Increases efficiency and throwing power
- Produces brighter and faster plating
- Allows use of a higher current density
- Retards anode polarization
- Eliminates cyanide and ammonia fumes

A Proven Process!

Used successfully by job platers and manufacturers

Non-Critical
Boosts Production
Cuts Rejects

For technical information, complete details and prices . . . write to

ELCO Finishing Equipment Corp.
153 East 26th Street, New York 10 • Phone LExington 2-3055

For more data circle 369 on Postpaid Card

For paint preparation that meets the new higher standards of the automotive industry use

KELITE KEYKOTE® 32

immersion
zinc phosphate coating

Keykote® 32 solutions yield highly effective, fine-grained, uniform coatings. These coatings provide corrosion protection, economy of paint consumption, and excellent paint adhesion. Coating formation is fast; no special pre-treatments are required; black iron or mild steel equipment can be used.

For further information or a Product Bulletin, contact the nearest Kelite Office listed below.

KELITE CORPORATION

• Los Angeles 12 • Chicago 45 • Berkeley Heights, N. J.

For more data circle 370 on Postpaid Card

in preventing buildup on ends and edges of parts being plated.

Manufacturer: Krome-King Div., National File Co., 530 N. Cedar St., Lansing 12, Mich.

For more data circle **145** on Postpaid Card

★ ★ ★

Space-Saving Dip-Finishing System

As much as 60 per cent of the floor space normally required for a dip-finishing installation is saved by using equipment recently developed by R. C. Mahon Co.

It's done by raising the dip tank up to the work (hanging on a conveyor) instead of making the conveyor take the work in and out of the dip tank. By doing this, length of the dip tank can be cut sharply while still allowing sufficient time for the products to be immersed and withdrawn at a slow enough rate.

Developed by The R. C. Mahon Co., the equipment is now being used to apply varnish insulation to stators and electric motor windings. According to the manufacturer, the system is suitable for dip finishing many other products as well.

The development is reported to provide good control of work withdrawal and constant level of varnish at all times. It also is flexible enough so that the servicing conveyor can be halted to allow a longer period of work drainage, if necessary.

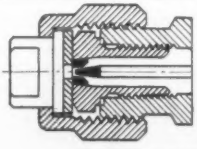
Normally, in a varnish dip insulating operation, the work comes from a preheat oven hot, then moves on a conveyor that dips into a stationary,

(continued)

with
TUNGSTEN CARBIDE valve seat and needle
•
STAINLESS STEEL body and cap
•
TEFLON packings

for efficient, trouble-free performance

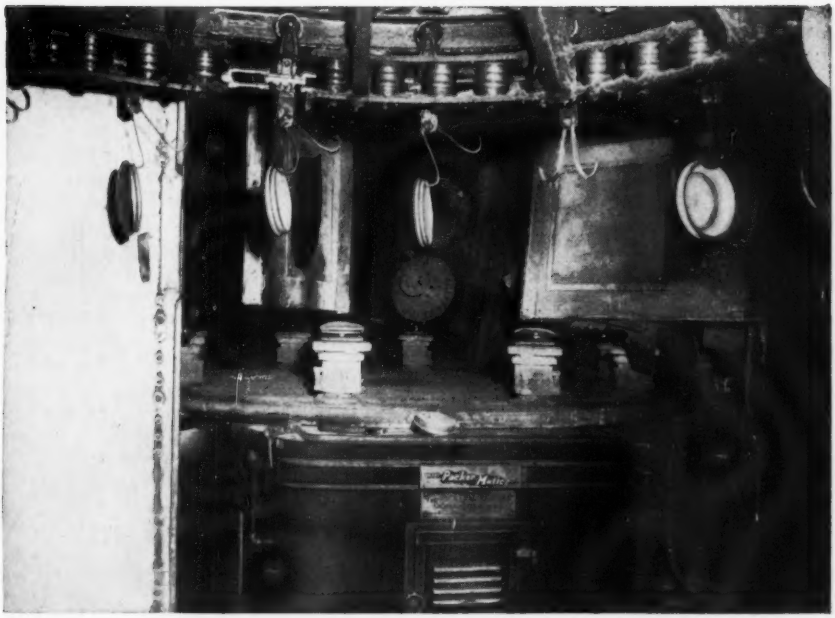
Here's the gun designed in detail for better, trouble-free performance. Needle cleans seat orifice automatically. For use at pressures from 400 to 2,000 psi. Complete choice of interchangeable orifice tips in all spray patterns, capacities and materials.



SPRAYING SYSTEMS CO.
3229 Randolph Street • Bellwood, Illinois

FOR INFORMATION WRITE FOR BULLETIN 95

For more data circle **371** on Postpaid Card



24 million pot lids can't be wrong!

Ask your wife. She will tell you about famous Revere Ware. Probably best known by their copper bottoms, the durable luster of pots and pans by Revere is taken for granted.

"Taken for granted" is exactly the phrase applied to the 3 Packer-Matic polishing and buffing units in Revere's Rome, N. Y. plant by Mr. F. W. Merry, Assistant Works Manager. "We feed them and our Packer-Matics do the rest," says Mr. Merry. "They haven't failed us in 23 years of high production rate operation." "They get a good clean up twice a year and that's about the extent of our maintenance."

Achieving highly reflective finishes on pot lids is only one of hundreds of polishing, deburring, buffing and cleaning applications Packer-Matics have handled since Mr. Clifford I. Packer turned out his first unit in 1927. Chances are we can help you in your finishing operations, too. Send us samples with your specifications or blueprints and see.

Production reliability makes Packer-Matic the choice of companies like Revere Copper and Brass Inc.

COPPER CLAD STAINLESS STEEL 18 01 REVERE WARE

PACKER-MATIC

THE PACKER MACHINE COMPANY • MERIDEN, CONN.

Pioneer Manufacturers of Automatic Polishing & Buffing Machines

For more data circle 372 on Postpaid Card

coil-cooled tank. After immersion (via conveyor), it gradually climbs out of the tank. For such an operation, the tank usually is extended considerably to provide extra space for gradual work withdrawal and drainage.

In the newly-developed Mahon system, this space is cut to less than half. Two shorter tanks, one over the other, are used to do the same work. Both tanks, which are only 8 feet long, are built into an operating unit (including hydraulic and varnish-circulating systems) that occupies a floor area only 6 feet wide by 14 feet long.

As in conventional procedures, the conveyor from the preheat oven runs over the upper or dip tank of the system, but it is designed so that it can be stopped to "spot" the work (suspended from hangers) directly over the dip tank for immersion.

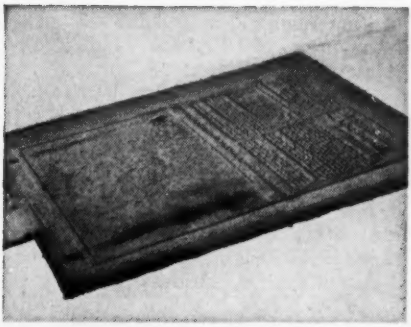
As the conveyor stops, it triggers a limit switch, and the upper tank (in lowered position) rises to immerse the work. As this movement takes place, the lower or varnish-storage tank moves downward. After immersion, the upper tank lowers automatically, and the lower tank rises — the two almost meeting.

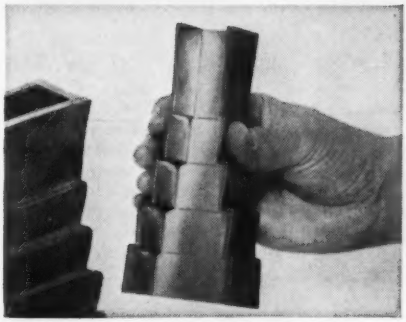
The lower tank serves as a counterweight in the movement. It also keeps the varnish in the dip tank at proper level, and holds the coils to cool the constantly circulated varnish.

Movement of the tanks is through a hydraulic cylinder, piston and chain drive arrangement, with speed controlled by hydraulic valving.

The system includes an electric eye control to provide for an infinite range

ALKALI IKE
HAVE YOU MET THESE MEMBERS OF ALKALI IKE'S FAMILY?
. . . ELECTRO 100 CLEANING COMPOUND — Direct current cleaning of highly polished non-ferrous metals.
. . . APEX 407 STRIPPER — Heavy duty alkaline paint remover.
. . . APEX 761 CLEANING COMPOUND — General purpose soak cleaning of ferrous and non-ferrous metals.
Your Inquiry Will Be Appreciated.
Apex ALKALI PRODUCTS CO.
A complete line of Cleaning Compounds for the Metal Finishing Industry
Main and Rector Streets • Philadelphia 27, Pa. • IV 3-3939
SYRACUSE BOSTON DETROIT ATLANTA PITTSBURGH WEST HARTFORD
For more data circle 373 on Postpaid Card





In electrotyping, plating rotogravure rolls, electroforming, "Plus-4" Copper Anodes cut plating costs

ELECTROTYPERS have discovered that, in addition to eliminating the use of bags and diaphragms, they can place "Plus-4" (Phosphorized Copper) Anodes closer to the cathodes to speed up the plating cycle 30% or more with the same power input—and still obtain a smooth deposit.

MAKERS OF ROTOGRAVURE ROLLS have found that "Plus-4" Anodes provide a much finer, smoother surface for polishing and etching, and retain the quality of the light tones in runs of over one million impressions on a single set of design cylinders. In addition, they report significant reductions in cost.

IN ELECTROFORMING operations, "Plus-4" Anodes—by eliminating the most prevalent acid-copper plating difficulties—have made it practical to produce many new products. Their ability to provide a smooth, dense deposit relatively free from growths and blemishes made possible relatively thick shells for molds used in making rubber and plastic articles, and in intricate precision parts for electronic use.

WRITE FOR INFORMATION on how you can obtain a test quantity to supply one tank. Address: The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario.

59106A

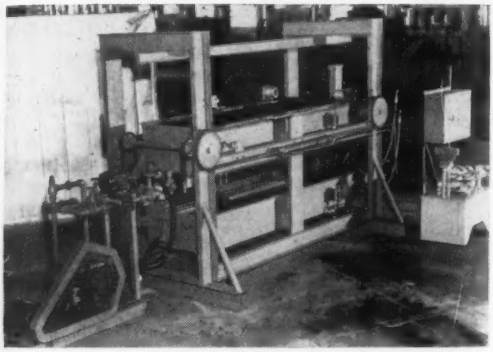
ANACONDA®

"PLUS-4"® ANODES

Phosphorized Copper

Made by The American Brass Company

For more data circle 374 on Postpaid Card



Two short tanks (one over the other) which move up and down automatically are key factors in a combination conveying and dip tank that reduces floor space as much as 60 per cent in varnish insulating and painting applications. Unit is capable of dipping 340 items an hour. It is now being used by a large producer of electric motors.

of immersion. The dip tank moves up a maximum of 13 inches, which allows immersion up to 9 inches.

Although rise, submersion and withdrawal times are adjustable, the dip tank for varnish applications normally rises in 6 seconds. The work is stopped submerged for 7 seconds, and withdrawal time is 58 seconds—the same time it takes the conveyor to move forward to spot another load.

Manufacturer: Industrial Equipment Div., R. C. Mahon Co., Detroit.
For more data circle **146** on Postpaid Card

★ ★ ★

Automatic Waste Analyzer

An automatic instrument which indicates the amount of impurities in plant discharge or in process water has been developed by Graver Water Conditioning Co. Currently designed for measuring amount of insolubles in liquids, the instrument is useful in

(continued)

PAINT STRIPPER

THE NEW MIRACLE

STRIPEX #153

NO HEAT NECESSARY!

A mild steel tank is all that is required. Strips All Types of Baked Enamels.
Some Baked Coatings are Stripped Clean in a matter of Seconds.
Excellent for stripping vacuum metallizing racks.

DYTEX CHEMICAL COMPANY

DYTEX

Chemical Specialties

PROVIDENCE 3, Rhode Island

For more data circle 375 on Postpaid Card

FREE DATA FILES

on the complete

Allied Research Line for Metal Finishing

PROCESSES & PRODUCTS FOR CORROSION PROTECTION, PAINT BASE, DECORATIVE FINISHING

A complete line including IRIDITE Chromate Conversion Coatings for non-ferrous metals, IRILAC Clear Protective Coatings for all metals, ISOBRITE Chemically Different Plating Brighteners and ARP Process Chemicals.

If one of our present products does not meet your needs, we'll be glad to work with you to find an answer to your problem.

EQUIPMENT AND COMPLETE FINISHING SYSTEMS

Includes information on WAGNER Silicon and Selenium Rectifiers, WAGNER Auto-Loaders for transfer of racks and parts from conveyors to plating machines or between conveyors, Automatic and Semi-Automatic Plating Machines, Barrels, Tanks and other equipment.

Also includes information on Process Engineering Service—complete plant design, specification and installation.

CHEMICALS AND SUPPLIES

Price and delivery information on a wide variety of plating room necessities, including ROLL-TOP Zinc anodes, FLAT-TOP copper anodes, ELECTROCOP Flat Copper anodes, Cadmium and Tin Anodes, Acid Replacements, Buffs, Chemicals, Cleaners and Maintenance Materials.

NICKEL RECASTING SERVICE

Ask about our Subscription Plan which combines your new nickel purchases with a service to recast your butts and spears, resulting in substantial savings.

WRITE DIRECT . . .

. . . for your copies of these FREE DATA FILES, or contact your Allied Field Engineer. He's listed in the yellow pages under "Plating Supplies".

Allied Research Products, Inc.

4004-06 EAST MONUMENT STREET • BALTIMORE 5, MARYLAND

BRANCH PLANT: 400 MIDLAND AVENUE • DETROIT 3, MICHIGAN

West Coast Licensee for Process Chemicals: L. H. Butcher Co.

European Agent: Shure Granberger, Storgatan 10, Stockholm, Sweden

Chemical and Electrochemical Processes, Anodes, Rectifiers, Equipment and Supplies for Metal Finishing

IRIDITE® Chromates | **IRILAC®** Coatings | **ISOBRITE®** Brighteners | **ARP®** Supplies | **WAGNER** Equipment

For more data circle 376 on Postpaid Card

metal-finishing plants. It can be used for quick cyanide determination and other testing.

Called the Graver Automatic Tape Analyzer, the device analyzes by the "Millipore Filter Test." In this test particulate material is removed from a liquid or gaseous sample by an ultrafine Millipore Filter membrane and retained on the surface where it may be identified, sized, counted or tested.

The tape analyzer automates the Millipore test by filtering samples in sequence as often as desired through a nylon-backed tape of Millipore Filter membrane and printing the time each sample is taken. The basic data produced is a circular stain or discoloration on the tape made by the solids extracted from the filtered fluid. The degree of discoloration, proportionate to the insoluble solids concentration, can be calibrated by analyzing a portion of a sample and then running another portion through the tape analyzer.

Operation is entirely automatic. A typical cycle begins when a compartment in the filter head lowers to receive the advancing tape. Then the following sequence takes place: (1) the compartment rises and seals the tape in the filter head; (2) the time is stamped on the tape; (3) the fluid enters the filter head, flows through the Millipore tape and out of the instrument into a calibrated volume-measuring tank; (4) the tank is filled to a predetermined volume, setting off an adjustable level switch which moves the inlet valve to the bypass position and

(continued)

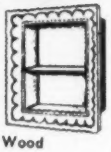
Dampen Vibration... Silence Noises...

ADD BEAUTY, COLOR, SALES APPEAL

WITH *Cellusuede Flock*

THE PRODUCT FINISH WITH 1000 USES

Every day product designers, industrial finish and material engineers are finding new, profitable uses for Cellusuede Flock — industry's most versatile product coating. With these cotton, rayon or acetate fibers, you can add new beauty, color, and sales appeal to your product, provide a durable protective finish, silence noises, or dampen vibration. Best of all, the soft velvet-like Cellusuede finish is easy to apply to wood, metal, plastic, fabrics, leather, cardboard, or paper surfaces, either on a modified or production line basis. It's inexpensive, more durable than fabric, and readily available in a wide range of textures and beautiful colors. Investigate today the profit possibility of using Cellusuede for your product.



FREE BULLETIN — SAMPLES, TECHNICAL SERVICE •

Write for 12-page bulletin illustrating profitable uses and applications. For help with a specific job, Cellusuede's technical service and unexcelled facilities are available for producing samples to meet your needs.

CELLUSUEDE PRODUCTS, INC.
Producers of Natural and Synthetic Flock

512 N. MADISON STREET • ROCKFORD, ILL.

For more data circle 377 on Postpaid Card

ANOTHER REPORT FROM THE ALMCO ALBUM OF NEW PRODUCTS

To know what's new in Barrel Finishing

Keep Your Eye on ALMCO!

The right machine, the right method, the right media—that's the basis for any ALMCO *Supersheen* System. A continuing program of research—that's the secret of ALMCO progress in making metal finishing easier, faster, finer. Here are typical recent developments.

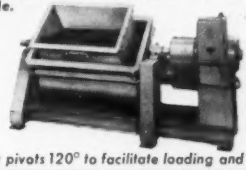
New Spindle Machine

For precise finishing of complex high-quality components on a continuous production line basis. Large parts or clusters of smaller parts are chucked directly to spindles from single operator's work station. Rotating spindles lower parts into high velocity stream of abrasive media contained in rotating tub. All surfaces get same amount of precision finishing in 1 to 9 min. trip around the tub.

Models available with automatic or manual indexing

New ALMCO VIBRASHEEN

New *Vibrasheen* method is particularly suited for faster burr removal and finishing hard-to-reach internal crevices. Vibrates a 5 cu. ft. load . . . uses scrubbing action to do the job in fraction of time needed in ordinary operations. Smaller and larger models also available.



Container pivots 120° to facilitate loading and unloading

ALMCO *has the right New* BARREL FINISHING EQUIPMENT *for you!*

New ALMCO Roll Barrels

One man operates entire Roll Barrel System. Makes low-cost barrel finish available to any deburring and finishing department!

New ALMCO Super Mite

Small in size, big in performance . . . that's the new ALMCO *Super Mite!* Ideal for labs, job shops, research departments and manufacturers with limited finishing needs. Handles close tolerance jobs and low micro-inch finishes; speedily does all deburring and finishing work. It's the new answer to low-cost, small-lot barrel finishing!

ALMCO

QUEEN PRODUCTS DIVISION
King-Seeley Corporation
87 E. MAIN ST.
Albert Lea, Minnesota

Free!
ALMCO ALBUM OF NEW PRODUCTS

For full story on the right machine, right method and right media, write for your FREE copy today!

YOUR SAMPLE PARTS PROCESSED without any obligation! Simply write on letterhead for address of nearest ALMCO lab or send parts direct to Albert Lea, Minn. Enclose specifications desired.

Designers and Builders of All Types of Barrel Finishing Systems for the Metal Working Industry

For more data circle 378 on Postpaid Card

Graver Automatic Tape Analyzer with volume-measuring tank in background. Unit measures impurities in all types of liquids, has many applications.

allows the fluid to flow to waste or back into the system; (5) the draining fluid sets off an alarm switch which repositions the inlet valve; (6) the compartment in the filter head lowers again to receive the advancing tape.

In addition to the basic data it provides, the stain on the tape can be used for further testing and analysis by such laboratory methods as spectrophotometry, flame photometry, mass spectrography, light scattering, chemical spot testing.

Manufacturer: Graver Water Conditioning Co., 216 West 14th St., New York 11, N. Y.

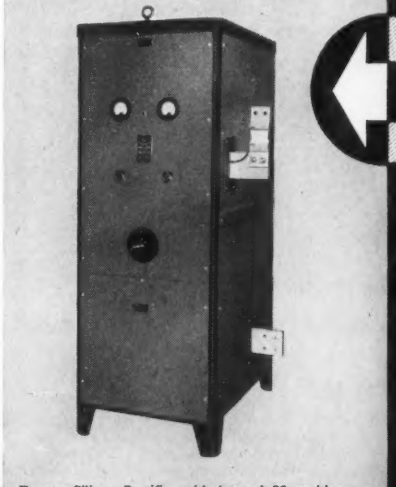
For more data circle **147** on Postpaid Card

★ ★ ★

Vibratory Finishing Machine

The Stevenson Company has developed a vibrator that can be utilized for mixing, pulverizing, deburring, descaling, cleaning and screening, grading

(continued)



Dresser Silicon Rectifier with integral 22 position tap switch control. 1500 Amps 1-6 Volts D.C. Input 220/440 - 3 - 60. Unit complete with magnetic starter, meters and shunt. Price: $1,275.00 net, F.O.B. Detroit, Michigan. In stock.

DRESSER SILICON RECTIFIERS REDUCE FINISHING COSTS!

Economical, dependable Dresser Silicon Rectifiers handle your power conversion needs with maximum efficiency. Easy to install and maintain, they help keep your finishing costs at a minimum.

Hermetically-sealed silicon cells will never age in use or in storage. Main transformers, built by Dresser Electric Co. *(transformer specialists)*, keep current uniform in cells, prevent overloading.

Write today for complete information on Dresser Silicon Rectifiers, Dresser Selenium Rectifiers and our special rectifier and transformer repair service.

DRESSER ELECTRIC CO.

2705 Wight Street — Detroit 7, Michigan

For more data circle 379 on Postpaid Card

RUST PROTECTION

. . . PROVEN DURING EXTENDED LINE STOPPAGES ON FINISHED PARTS— STEEL AND CAST IRON.

. . . AN EXCELLENT METAL CLEANER

I am Mr. U. Unique
I have no peer.
I am Mr. A. Film
Not oily—and invisible.
I am Mr. Rust Protection
Surpassing rigid field tests.
I am Mr. P. H. Neutral
My value of 8.
I am Mr. S. T. Ability
No separation.
1409
I am Mr. T. O'Lerant
To temperatures,
metals, or hard water.
I am Mr. I. N. Sensitive
To alkali.
I am Mr. L. O. Cost
Inexpensive, but not cheap,
with a low, low cost.

WRITE OR PHONE FOR MORE INFORMATION

Solventol CHEMICAL PRODUCTS, INC.

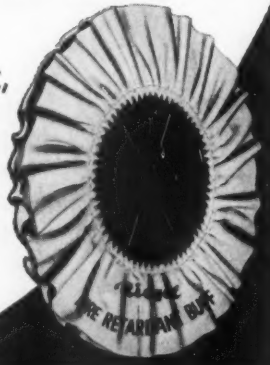
NEW HORIZONS IN DETERGENT CHEMISTRY

15841 Second Blvd. • TO 8-8466 • Detroit 3, Michigan

For more data circle 380 on Postpaid Card

Riegel

JOB ENGINEERED
BUFFS
A COMPLETE LINE . . .
Cloth Polishing Wheels . . .
Bias,
Full Disc,
Finger,
Sisal
BUFFS



There is a Riegel Buff designed for your specific need . . . Write today for more information to:

Bias Buff and Wheel Division
RIEGEL TEXTILE CORPORATION
Conover, North Carolina

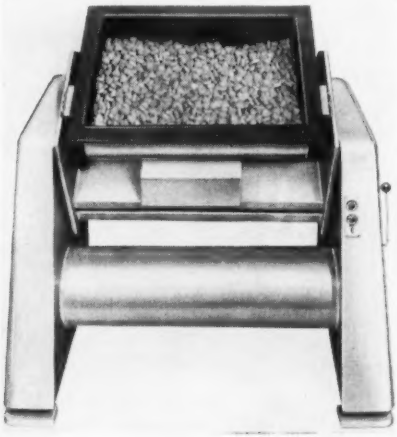
OFFICES:
260 Madison Ave., New York 16, N. Y.
4346 N. Woodward Ave., Royal Oak, Michigan
111 West 7th St., Los Angeles, Calif.

For more data circle 381 on Postpaid Card

stones, or for surface refinement of metal parts.

In this machine, 100 per cent of the media is vibrated, yet little vibration is transmitted to the base. Thus the equipment need not be bolted to the floor. It can be moved easily.

The suspension system permits angular positioning of the tub. In the inverted position the tub can be used to screen-separate materials. Provisions have been made for varying the amplitude of vibration.



Stevenson Company's Vibrator: mixes, pulverizes, deburrs, descales, cleans, screens

Manufacturer: Stevenson Company, Wellsville, Ohio.

For more data circle 148 on Postpaid Card

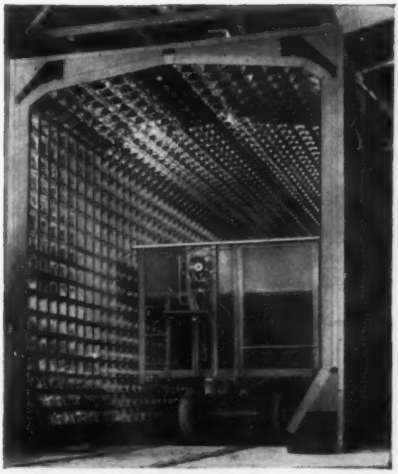
★ ★ ★

Zinc Plating Brighteners

Allied Research Products, Inc., has introduced two brighteners (Isobrite No. 333 and No. 334) for use in high-current-density cyanide zinc plating solutions. The two materials are identical except that Isobrite No. 333 is more concentrated. Each is economical to use, has excellent throwing power,

(continued)

GIANT FOSTORIA INFRARED OVEN DRIES 25 R.R. CARS PER DAY FOR ACF



Drying freshly-painted, 54-foot, 64,000 pound railroad cars was a costly, time consuming job for American Car and Foundry until two Fostoria Infrared ovens were installed at the ACF Huntington, W. Virginia, plant.

Probably the world's largest infrared ovens, these mammoth 18-feet high, 15-feet wide Fostoria units can dry a freight car in 15 minutes or less and handle 25 cars in each 8 hour day. Primer, finish, stencil coats and an asphaltum coat for car bottoms can be dried efficiently, and the ovens are easily adjusted for the different drying cycles and heats required by each finish.

Time and temperature controls are located in a central JIC panel for operative convenience. The sides and top of the oven are separately wired and each can be operated independently. Unique angular reflecting units are located at each end of the oven to dry car ends and to form a "barrier" against heat loss and waste.

To learn how Fostoria infrared ovens can save time and money in your baking, dehydrating, drying, preheating or other heating application, write for "Radiant Heat—Applications Unlimited." Infrared Division, Fostoria Corporation, Fostoria, Ohio.

FOSTORIA

For more data circle 382 on Postpaid Card

operates in a wide current-density range, and produces fine-grained, bright deposits.

Manufacturer: Allied Research Products, Inc., 4004-06 E. Monument St., Baltimore 5, Md.

For more data circle **149** on Postpaid Card

★ ★ ★

Economical Spray Booth Coating

A low-priced strippable spray booth coating has been developed by DuBois Chemicals, Inc. Called Zip-It, the product is flammable, should be used with the same care as other solvent-containing materials, DuBois reports. A nonflammable booth coating is also manufactured by DuBois. It's called Peel Filmite.

Manufacturer: DuBois Chemicals, Inc., 634 Broadway, Cincinnati 2, Ohio.

For more data circle **150** on Postpaid Card

★ ★ ★

Plastic Anti-Fume Balls

Hollow plastic balls made by Cosom Engineering Corporation are effective in inhibiting fumes and mist in plating and pickling operations.

Molded of high density polyethylene made by the Plastics Div. of Koppers Co., Inc., these balls have excellent resistance to acids and high temperatures.

In plating operation they do not deteriorate at normal tank temperatures; in pickling operations surface hardness of these balls is not affected after being in 10 per cent aqueous solutions of hydrochloric and sulfuric acids at temperatures of 160 to 211 deg. F. for three months.

They should not be used in nitric acid solutions.

These balls nest tightly to form a

(continued)

MOISTURE-FREE SURFACES in 1/2 THE TIME!

Model 20 New Holland KREIDER Centrifugal Dryer

Air-dries . . . as it Spin-dries! Eliminates scoring and marring . . . speeds up production . . . cuts down on rejects!

SPECIFICATIONS:

1-h.p. motor—220, 440, 550 volts—2 or 3 phase. Spins 75-lb. loads at 825 r.p.m. Quiet V-belt drive. Arc-welded steel plate construction. Weight 490 lbs. Requires minimum floor space. Meets N.E.C. specs. Auxiliary electric or steam heating units available as optional equipment.

Send for illustrated 4-page folder. Write Dept. F-760

NEW HOLLAND MACHINE COMPANY
NEW HOLLAND, PA.

For more data circle 383 on Postpaid Card

PROVEN IN MANY DIFFERENT FIELDS
for *High Production, Quality,* and *Simplicity* of Operation

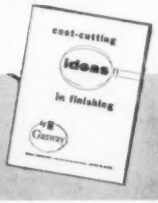
How the NEW GASWAY Kinetic-Kurtain Coater
helps you improve finish, save material and increase production

Production Proven—In Plant After Plant

Kroehler Manufacturing— *Furniture*
S. A. Hirsh— *Store Fixtures*
F. S. Harmon— *Furniture*
Simpson Redwood— *Redwood Siding*
Jones Veneer & Plywood— *Plywood Panels*
Koppers, Inc.— *Prefab Homes*
Mississippi Products— *Cabinets*
Woodall, Inc.— *Automotive Parts*
Wood Specialties— *Siding*
Marathon Paper— *Paper-Food Cartons*
Gateway Manufacturing— *Kitchen Cabinets*
Architectural Hardware— *Cabinets*
Kieckhefer-Eddy— *Beer Cartons*
Deka Corporation— *Masonite Wallboard*
K. J. Quinn Co.— *Paint Formulating*
Wallace Manufacturing— *Tileboard*
URB Products— *Toys*

CHECK THESE FEATURES:

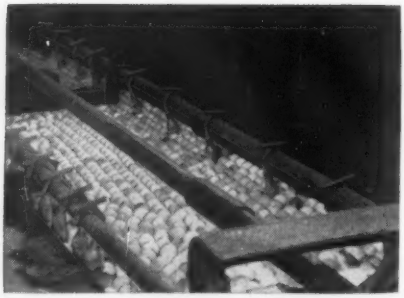
- ☐ Uniform film thickness control
- ☐ Smoother films even with fast solvents
- ☐ No flow-mark problems
- ☐ High speed roller coating economy



GASWAY CORPORATION

6463 N. RAVENSWOOD AVE.
CHICAGO 26, ILLINOIS
SHELDRAKE 3-1414

For more data circle 384 on Postpaid Card



Cosom Plastic Balls: reduce mist, fumes

level and almost solid blanket covering about 95 per cent of the surface area. They trap gas bubbles, which are smothered against the underside of the balls, thus preventing the objectionable mists from escaping. Evaporation loss of chromic acid is cut by as much as 30 per cent and fumes are reduced about 87 per cent. These balls also minimize heat loss.

It takes about 55 balls per square foot to adequately cover a tank.

Manufacturer: Cosom Engineering Corporation, Minneapolis, Minn.

For more data circle **151** on Postpaid Card

★ ★ ★

Infrared Heating Equipment

A complete line of infrared heating equipment and ovens has been introduced by Radcor, Inc., Bradner, Ohio.

The line includes components; modular oven sections that can be used singly or in groups; and ovens designed and built for various basic commercial and industrial operations.

The equipment is divided into two series: the "L", in which linear heat

Chemical Polishing Cuts Aluminum Finishing Cost

America's Foremost Chemical Polishing Process. Alchemize levels surfaces, producing finishes from satin to mirror-bright on otherwise impossible shapes and sizes. Want proof? We'll process your samples and make recommendations without charge.

Alchemize concentrate is available in carboys, drums and tank trucks. Immediate service and delivery in U. S. and Canada.

ALCHEMIZE CORPORATION

Congress Expressway and South Kolmar, Chicago 24, Illinois

CHEMICAL POLISH FOR ALUMINUM

Alchemize

For more data circle 385 on Postpaid Card

sources may be used; and "G", which will accommodate G-30 lamps spaced on 12-inch centers. Only two basic parts are required for a Radcor oven in either series—modular sections and frame wireway or frame.

The modulars are steel housings. In the "L" series, they come in two widths (6 inches and 12 inches) and in four lengths. In the "G" series, they are available in a 12-inch width and in three lengths. Several types of reflecting materials are available.

The frame-wireway is a channel which serves for the collection of wires from various sections, a housing for terminal blocks and as supporting framework for the oven. It can also serve as an air chamber for applications where forced air is required to cool terminals and lamp seals.

The ovens are available in several basic shapes and sizes.

The heat sources offered consist of metal-sheathed heaters, quartz tubes, quartz tungsten lamps and G-30 tungsten lamps.

Manufacturer: Radcor, Inc., subsidiary of Edwin L. Wiegand Co., Pittsburgh, Pa.

For more data circle 152 on Postpaid Card

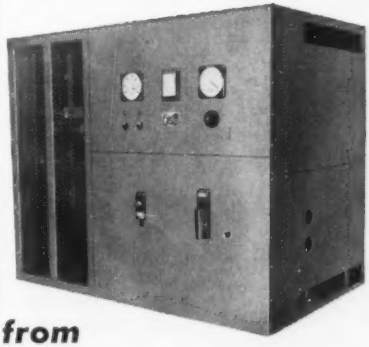
Baking Enamel

Monroe Sander Corporation has introduced a baking enamel which the manufacturer says is an "outstanding development."

Called Sanco Durodak Bake Enamel, this product has the following properties:

1. Film unaffected by 28-inch-pound impact or ⅛-inch mandrel bend when supported on 18-gauge steel panel.
2. Pencil hardness of 8H to 9H.

more profitable metal finishing with dependable d-c power supplies from SYNTRON



SELENIUM or SILICON

RECTIFIER POWER UNITS

SYNTRON Rectifier Power Units are custom built to specifications, to meet specific d-c power requirements for metal cleaning, plating or finishing.

We can supply low ripple requirements up to 1%.

SYNTRON Rectifier Power Units are efficient, dependable—easy to install—easy to maintain.

SYNTRON Engineers welcome all special applications.

Write for free literature today

SYNTRON COMPANY

Quality Equipment Since 1921

452 Lexington Ave. Homer City, Penna.

For more data circle 386 on Postpaid Card

NIEHAUS
FUME SEPARATORS

PROVEN
FUME-CONTROL EQUIPMENT

Washes fumes of plating and anodizing solutions from air economically. Low cost, long life.

Write for Illustrated Bulletin.

NIEHAUS BROS., INC.

2325 Valley Ave. Indianapolis 18, Ind.
For more data circle 387 on Postpaid Card

3. Excellent resistance to abrasion, corrosion.

4. One-c.c.-puddle test with a wide variety of reagents for one hour produces no damage or only slight discoloration or loss of lustre. Among the reagents that this finish resists are sulfuric acid, hydrochloric acid, phenol, xylol, acetic acid, sodium hydroxide, ethyl alcohol.

Bakes at 350 deg. F. for six minutes, reduces with xylol.

Manufacturer: Monroe Sander Corp., 10-18 46th Ave., Long Island City 1, N. Y.

For more data circle **153** on Postpaid Card

★ ★ ★

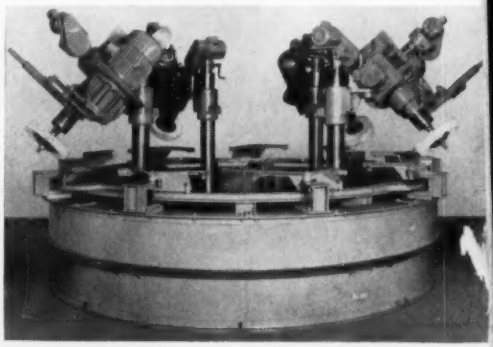
Automatic Polishing and Buffing Machine

An automatic polishing and buffing machine with a rotary conveyor which cuts floor space requirements is available from Acme Manufacturing Co.

The recently introduced machine is designed to buff parts such as automobile moldings, refrigerator trim, stove trim and other parts with sweep or angular shapes.

Parts are loaded and unloaded from one position on the periphery of the

(continued)



This Acme 12-foot rotary-conveyor-type automatic polishing and buffing machine finishes angular-shaped automotive trim, turns out 350 pieces per hour.

FOR FAST ACTING, FREE-RINSING

PRE-CLEANERS

to speed up production, and cut your reject rates on Automatic Plating Lines

DIVERSEY 909

HEAVY DUTY CLEANER provides wetting action for thorough cleaning within the short time limits of automatic cleaning cycles. Diversey #909 is a free-draining, free-rinsing cleaner that minimizes "drag out" problems. It's safe, non-caustic, easy to handle. Diversey #909 has long life due to high capacity for holding contamination in suspension.

DIVERSEY 12

ELECTROCLEANER. Its thorough cleaning action is due to excellent current-carrying capacity and controlled detergency. Diversey #12 Electrocleaner provides superior wetting, emulsifying and suspension characteristics in hard or soft water.

For complete details as to how these quality products can improve your automatic pre-cleaning operations, contact your local D-Man, or write The Diversey Corporation, 1820 W. Roscoe St., Chicago 13, Illinois.

DIVERSEY®

For more data circle 388 on Postpaid Card

machine, which has a rotating outer conveyor ring and a stationary inner ring. Work pieces mounted on fixtures on the rotating ring move past buffing wheels mounted on adjustable lathes spaced around the inside of the conveyor. Cam rails mounted on the stationary inner ring can operate in conjunction with pivoted fixtures to move the part to controlled positions at various stations around the periphery of the machine.

Up to six adjustable lathes can be placed inside the rotary conveyor. An equal number can be mounted around the outside of the conveyor, if required. The conveyor travels at 8 to 32 f.p.m.

The machine is designed to provide minimum maintenance. The rotating table travels on fixed ball bearing rollers. The ring supporting the table is held concentric by adjustable ball bearing rollers. The ring is driven by an externally mounted power unit.

Manufacturer: Acme Manufacturing Co., 1400 E. Nine Mile Rd., Detroit 20, Mich.

For more data circle **154** on Postpaid Card

★ ★ ★

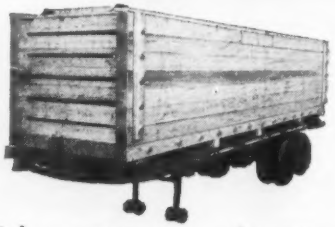
Improved Clinch Ring for Buffs

A clinch ring with steel over-lap at the weld is now standard on all air-cooled buffs manufactured by American Buff Company.

The clinch ring's holding power is increased greatly by the steel overlap, adding life to each buff, the manufacturer reports.

Company engineers perfected an improved projection welding procedure to do this job. An improved method of die-forming clinch-ring teeth is also

BIG TANKS
. . . or small
to fit *your* needs



Made to meet *your* requirements . . . from only the finest woods. Over 90 years experience. Get free estimates.

WOOD TANK DIVISION

Kalamazoo | **TANK & SILO CO.**

1571 Harrison Street, Kalamazoo, Michigan

For more data circle 389 on Postpaid Card

TRUE BRITE BRASS SOLUTION

A foolproof solution which has been in use for over 6 years in light and heavy production.

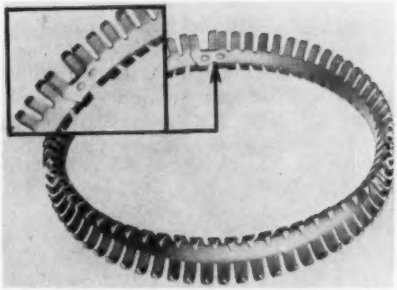
- **Ready To Use — Just Add Water**
- **No Variance in Color**
- **Trouble-Free — Little Supervision Needed**
- **Low Cost — Additions only once a day**

Available in a variety of colors. Will match your sample.

Write for technical bulletin and prices.

TRUE BRITE CHEMICAL PRODUCTS CO.
Box 31, Oakville, Conn.

For more data circle 390 on Postpaid Card



Improved Clinch Ring for American Buffs

used to produce stronger, larger teeth.

The welding procedure, the die-forming of teeth, and the steel overlap provide such a secure grip that both puckered and unit type buffs can be manufactured from heavier fabrics than before, the company reports.

Manufacturer: American Buff Company, 2414 S. La Salle St., Chicago 16, Illinois.

For more data circle **155** on Postpaid Card

Wide-Angle Square-Spray Nozzle

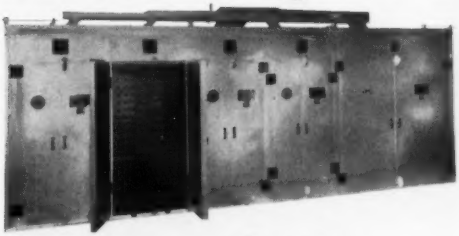
Spraying Systems Co. has developed a spray nozzle which produces a wide, square, spray.

This nozzle is designed for installation on spray manifolds where open area is dimensionally limited. The average spray angle of 110 degrees provides wide coverage within a short distance between spray nozzle and work. In multiple-nozzle installations the square spray pattern minimizes spray overlap yet provides total coverage.

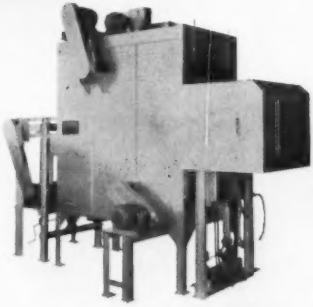
Manufacturer: Spraying Systems Co., 3229 Randolph St., Bellwood, Ill.

For more data circle **156** on Postpaid Card

Outstanding for Drying Finishes



5 - compartment, truck loading, electric oven.



Oven with horizontal conveyor for automatic dipping and baking finish on metal parts.

ROCKWELL OVENS

You're sure of closely controlled drying uniformity and efficient production in Rockwell Ovens.

Built to your specific requirements in standard cabinet, rack or truck types or special batch or conveyor types — electric, gas or steam.

Bulletin 127 is worth studying. Write.

W. S. ROCKWELL CO.
2900 Eliot St., Fairfield, Conn.

For more data circle **391** on Postpaid Card

Finish Sander

An air-driven sanding machine recently introduced by National-Detroit, Inc., does an excellent job of finish sanding in painting shops.

The unit is said to produce a scratch-free finish because the abrasives are travelling in a non-directional pattern—they do not follow a set path and cause deep gouges.

National Detroit's Model DA Air Sander

Model DA (Dual Action) Sander removes sags and scratches, without going through the undercoat, sands putty and surfacer, using grits from 180 to as fine as 320 mesh. The unit operates dry, deters loading of the abrasive.

Manufacturer: National-Detroit, Inc., 2810 Auburn St., Rockford, Ill.

For more data circle **157** on Postpaid Card

★ ★ ★

Hand Cleaner

Schaffner Manufacturing Co., Inc., has developed a hand cleaner called "New Liquid Little Doc" Disolvit Industrial Hand Cleaner. The paste cleaner made by Schaffner will still be available, the company reports.

Waterless Hand Cleaner

This product was developed especially to remove soil acquired in the finishing industry. It takes off polishing grease, buffing compounds, die grease, oils, plating soils and so on, with or without water. Also removes paint, printers' ink, mastic, tinners' cement, tar, shellac and rubber cement.

Containers full of this product can be mounted on a wall bracket anywhere in the plant.

Manufacturer: Schaffner Mfg. Co., Inc., Disolvit Div., Schaffner Center, Emsworth, Pittsburgh 2, Pa.

For more data circle **158** on Postpaid Card

★ ★ ★

Rolled Carbon Nickel Anode

A rectangular rolled carbon nickel

Use the finish proved best by performance

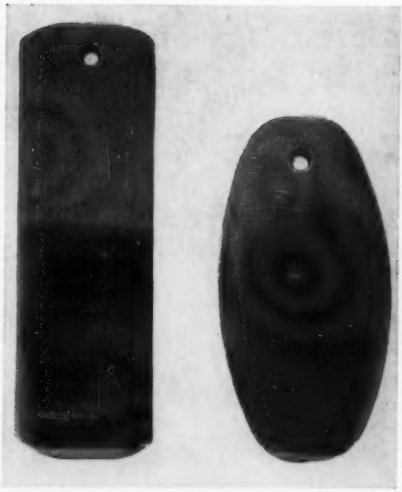
Randolph

LACQUERS • ENAMELS
DOPES • THINNERS
CLEAR METAL FINISHES
COLORED LACQUERS
CLEAR S.G. FOR METAL
TEXTURE ENAMELS
CHEMICAL COATINGS
AIRCRAFT FINISHES

Our reputation is built on
EXPERIENCE—RESEARCH—SERVICE

RANDOLPH PRODUCTS CO.
CARLSTADT, N. J.

For more data circle 392 on Postpaid Card



(Left) Rectangular rolled carbon nickel anode. (Right) Econ-O-Shape cast anode. Hanson-Van Winkle-Munning now produces all of its cast anodes in this shape because it produces less scrap, runs longer between changes.

anode recently introduced by Hanson-Van Winkle-Munning Co. is said to offer maximum proportional scrap loss savings and long running times between changes of nickel anodes. It measures 4 by 1¼ inches. Standard elliptic and rolled depolarized nickel anodes are still available from Hanson-Van Winkle-Munning.

Manufacturer: Hanson-Van Winkle-Munning Co., Matawan, N. J.

For more data circle **159** on Postpaid Card

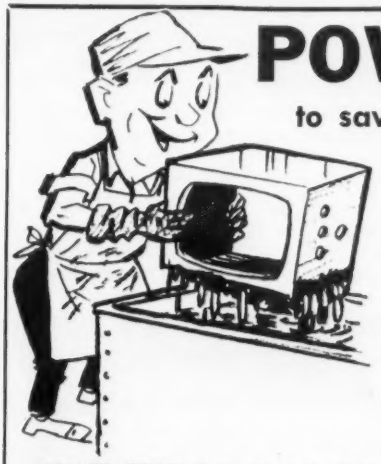
★ ★ ★

Paint-Decorating Fixtures

The development of vertical fixtures which make it possible to decorate many mass-produced parts (such as elaborate point-of-purchase displays and TV screen frames) has been announced by Conforming Matrix Corporation.

Employing an exclusive square-shaft air cylinder, this unit assures positive registration of the part into the mask.

(continued)



POWER STRIP

to save time, money and effort

KLEM POWER STRIP quickly removes even the toughest epoxy primers and acrylic paints. The caustic base powder forms a perpetually clear tan solution. This makes titration control easier.

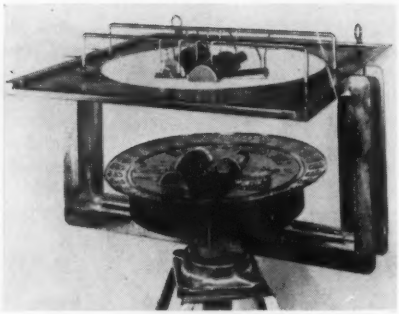
- Power stripped paint particles settle rapidly.
- Objectionable phenolic odors are eliminated.
- Safety caution is the same as with caustic soda.
- Stronger POWER STRIP needs few additions of compound for lasting concentration.

Just dip your parts or fixtures in KLEM POWER STRIP then rinse in clear water for slick as a whistle paint stripping. Write or phone for technical information.

KLEM CHEMICALS, INC.

14401 LANSON AVENUE • TIFFANY 6-2600 • DEARBORN, MICHIGAN

For more data circle 393 on Postpaid Card



Conforming Matrix Paint-Decorating Fixture

These fixtures revolve a full 360 degrees on bearings.

Manufacturer: Conforming Matrix Corporation, 356 Toledo Factories Bldg., Toledo 2, Ohio.

For more data circle **160** on Postpaid Card

★ ★ ★

Base and Top Coats for Vacuum Metallizing

A thermosetting coating for use on polystyrene, acrylic, phenolic and other plastic materials and products being vacuum metallized is available from John L. Armitage & Co. It is said to provide a thick film and excellent wear and humidity resistance.

Designed for use on a wide variety of products including novelty jewelry, control knobs and cases for transistor radios, the coating is applied either by dipping or spraying. The base coat is baked for one hour at 150 deg. F., the product is vacuum metallized and the top coat is applied and baked for another hour at 150 deg. F.

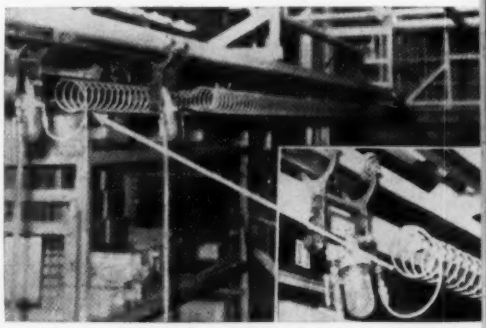
Manufacturer: John L. Armitage & Co., 245 Thomas St., Newark, N. J.

For more data circle **161** on Postpaid Card

★ ★ ★

Large-Diameter Retractable Air Hose

A larger-diameter retracable air hose with greater capacity has been introduced by Samuel Moore & Co. The S12 Synflex Self-Storing Air Hose has an inner diameter of ⅜ inch. It extends and retracts like a telephone extension cord. Total hose length is 25 feet. Extended working length is 20



Fixed installation carries conveyor lubricant in automotive plant, eliminates looping, increases headroom.

NO HEAT *is required for*
BARCO Metal Degreaser Fluid

Start right—use BARCO and get flawlessly finished products.
USE COLD • IDEAL FOR FERROUS & NON-FERROUS METALS
Order trial gallon at drum price. Satisfaction guaranteed. Write to:

BARCO Chemical Products Co.
701-703 So La Salle St. Chicago 5, Ill.

For more data circle 394 on Postpaid Card

feet and it retracts into a compact coil 9 inches long and 5 inches in diameter.

The larger S-12 hose is recommended for compressed air lines of larger and heavier types of blow guns, pencil grinders, nut setters, chippers, snagging tools, disc sanders, belt sanders, jitter bugs and impact wrenches.

Synflex self-storing air hose is lighter in weight, which reduces operator fatigue. It also resists kinking. This hose is supplied with reusable couplings that are easily assembled and a spring guard to prevent crimping.

Manufacturer: Synflex Products Div., Samuel Moore & Co., Mantua, Ohio.

For more data circle **162** on Postpaid Card

★ ★ ★

Electric Radiant Heat Panel

An electric radiant heat panel for commercial and industrial applications has been introduced by the Infrared Division of Edwin L. Wiegand Co.

Designated Chromalox Type QRP, the panel is equipped with quartz tube elements. It provides excellent terminal and resistor life.

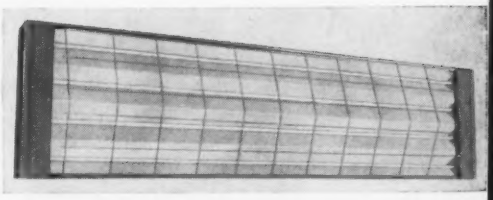
Uses for the Chromalox panels include paint baking, industrial process heating, and indoor and outdoor spot-comfort heating.

Compact in size, dimensions are one foot by four feet. Four- and six-kilowatt panels are available for 208 and 240 volts, while the 240-volt elements may be connected in series for operation on 480 volts.

Where large areas of radiation are involved, type QRP panels may be mounted horizontally at any angle, end to end, and edge to edge on ½-inch conduit stems.

For maximum effective radiation, each panel is equipped with a bright-nickel plated steel grille with reflecting ability in excess of 80 per cent. Heat loss through the panel is inhibited by insulation between reflector and panel back.

For further information, request



Wiegand Electric Radiant Heat Panel

Bulletin PG-104, available from the manufacturer.

Manufacturer: Edwin L. Wiegand Co., 7500 Thomas Blvd., Pittsburgh 8, Pennsylvania.

For more data circle **163** on Postpaid Card

★ ★ ★

Chrome Reducer

A chrome reducer for use in alkaline cleaners and copper plating solutions has been developed by MacDermid, Incorporated.

Metex Chrome Reducer M-623 is a

(continued)

IT'S HERE!!

Industry Management Manual

Free to New NAMF Members*

Completely new, over 200 jam-packed pages of management know-how. Hundreds of ideas on cost-cutting, shop practices and how-to information. An indispensable tool for owners and operators of metal finishing firms. To be released July, 1960.

FOR MEMBERS' CONFIDENTIAL USE ONLY

*Effective at once, each new NAMF member (not affiliated with an already established local NAMF group) will receive a copy of the manual on the advance payment of initiation fee ($25.00) and 1st quarter dues ($30.00 for job shop, and $37.50 for non-job shop).

namf **MANAGEMENT MANUAL — SPECIAL PRE-PUBLICATION OFFER — $20.00**

(Order must be received before August 1, 1960 *with check* for this special offer.)

REGULAR PRICE—$25.00

NOTE: Limited to one manual per member. Add $1.50 for each line of 28 characters, if you desire firm name stamped in gold on cover.

ORDER DIRECT FROM **NATIONAL ASSOCIATION OF METAL FINISHERS**
11 Park Street, Montclair, New Jersey

For more data circle 395 on Postpaid Card

dry, white granular powder used in soak or electrocleaners and cyanide copper plating solutions. It reduces hexavalent chromium and eliminates adverse effects of this contaminant on subsequent electroplating. Less expensive than sodium hydrosulfite, M-623 also eliminates stains resulting from chrome-contaminated cleaners; improves adhesion of the plated coating; extends cleaner life; and permits operation of a contaminated copper plating bath until time is available for full chrome-removal treatment.

Manufacturer: MacDermid, Incorporated, Waterbury, Conn.

For more data circle **164** on Postpaid Card

★ ★ ★

Versatile High-Vacuum Systems

Two high vacuum systems now being produced by Consolidated Vacuum Corporation can produce a low ultimate pressure of 2×10^{-6} mm Hg. They are ideal for use in electronics, optics, research and development, functional vapor deposition or general high-vacuum processes where the use of an evacuated chamber with 14- or 18-inch diameter is feasible.

CVC's Versatile High-Vacuum System

Designed primarily for vacuum coating of items such as transistors, capacitors, resistors, mirrors, dichroics and beam splitters, they are also useful for studies in crystallography and metallurgy, CVC says.

The LCl-14B system (14-inch chamber) reaches a working pressure of 5×10^{-4} mm. Hg in 3 minutes with a 4-inch PMC diffusion pump and a 13-c.f.m. mechanical roughing pump. The LCl-18B system reaches a working pressure of 1×10^{-4} mm. Hg in 5 minutes with a 6-inch PMC diffusion pump and a 13-c.f.m. mechanical roughing pump.

Versatility is the outstanding characteristic of these high-vacuum systems. With the choice of a basic system, the customer receives as standard a Pyrex chamber; stainless steel baseplate with attached gate valve; PMC oil diffusion pump; manifold with backing and roughing ball valves; chevron-type baffle; flanged connectors for attaching a suitable mechanical pumping assembly; and necessary electronic circuitry. In addition he can choose from many standard options and accessories.

Manufacturer: Consolidated Vacuum Corp., 1775 Mt. Read Blvd., Rochester 3, N. Y.

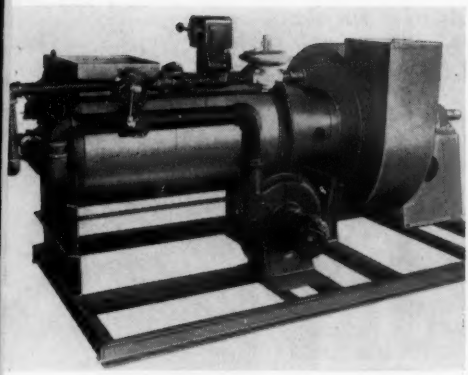
For more data circle **165** on Postpaid Card

★ ★ ★

Low-Pressure Gas-Fired Heater

W. S. Rockwell Company has developed a heater for supplying recirculated hot air at temperatures up to 600 deg. F. to ovens, dryers and other heat-processing equipment.

The insulated cylindrical heater body is equipped with low-pressure gas



Rockwell Low-Pressure Gas-Fired Heater

burner and combustion air blower.

The heater and its completely integrated combustion system, piping, safety controls and regulators, fan and motor are mounted on a common structural steel bed. It is made in six sizes which provide from 500,000 Btu/hour to approximately 4,000,000 Btu/hour.

Manufacturer: W. S. Rockwell Co., 200 Eliot St., Fairfield, Conn.

For more data circle **166** on Postpaid Card

★ ★ ★

Water-Thinned Protective Coating for Brass, Brass Plates

Lacqua is a non-flammable water-thinned liquid product that forms a protective film on brass and brass plates. Brass and brass plated products dipped in this material are said to have excellent corrosion resistance.

Lacqua does not alter the color of the metal, produces no blush or iridescence. In tests conducted by Accurate Engineering Laboratories, Chicago consultants, Lacqua-protected brass-plated steel passed 96-hour salt spray tests.

Products can be treated with Lacqua while still wet, the developer reports.

Manufacturer: Bee Chemical Co., Logo Div., 12933 S. Stony Island Ave., Chicago 33, Ill.

For more data circle **167** on Postpaid Card

★ ★ ★

Sonic-Energy Cleaning System

Technological advancements incorporated in Bendix Sonic Energy Cleaning systems make possible the use of substantially smaller electronic generators and provide improved cleaning while precluding noise and transducer-cooling problems.

Improvements in both the generator and cleaner extend the life and reliability characteristics of the magnetostrictive transducer equipment, Bendix reports.

Bendix ultrasonic cleaning systems incorporate coordinated units for

(continued)

The Latest

DERMITRON

NON-DESTRUCTIVE THICKNESS TESTER!

Measures coatings rapidly and accurately.

Instantly measures the thickness of metallic and non-metallic coatings and films.

Write for complete information.

UNIT PROCESS ASSEMBLIES, INC. UPA

53-15 37th Ave., Woodside 77, N. Y.

For more data circle 396 on Postpaid Card

Improved Bendix Ultrasonic Cleaning System

rinsing, drying and filtering.

Manufacturer: Bendix Corporation, Pioneer-Central Div., Davenport, Iowa.

For more data circle **168** on Postpaid Card

For cleaning metal, wood and plastic surfaces before painting. Order today through your supplier.

DETRO SALES CO., INC., ***Culver City, California***

Standard of the Finishing Industry Since 1934

For more data circle 397 on Postpaid Card

Liquid Replacement for Rochelle Salts

Tartrate Plating Additive

Cowles Chemical Company is manufacturing a tartrate plating additive called TPA, which is a direct replacement for rochelle salts in bronze, brass, copper strike and copper plating solutions.

TPA is a liquid concentrate which goes into solution instantly without fuming. The tartrate added this way provides more uniform anode corrosion and greatly increased cathode efficiency, Cowles reports. Therefore, it helps produce finer grain and clearer, brighter deposits. The use of TPA for the tartrate component of the electrolyte also reduces filtration frequency because it chemically "ties up" organic and metallic contamination.

A one per cent solution of TPA is equivalent to one ounce per gallon of rochelle salts in direct substitution. Standard procedures, including lab checks for tartrate concentration, can be maintained.

Manufacturer: Cowles Chemical Co., 7016 Euclid Ave., Cleveland 3, Ohio.

For more data circle **169** on Postpaid Card

★ ★ ★

Automatic Deburring Machine

A machine which automatically deburrs holes in such items as automatic washer and dryer baskets has been developed by Murray-Way Corp.

Utilizing four wire brush heads, this machine will completely deburr a washer or dryer basket in 10 seconds. Three operations occur simultaneous-

Your Name_____ Your Title_____

Company Name_____

Company Address_____

City_____ Zone_____ State_____

Products Manufactured_____ Number of Plant Employees_____

July, 1960

products finishing

Circle KEY numbers (NOT PAGE NUMBERS) for more information on items described or advertised in this issue.

1	21	41	61	81	101	121	141	161	181	201	221	301-2nd Cov.	338	359	379	399	419	439	459	479	499	519
2	22	42	62	82	102	122	142	162	182	202	222	302-3rd Cov.	339	360	380	400	420	440	460	480	500	520
3	23	43	63	83	103	123	143	163	183	203	223	303-4th Cov.	340	361	381	401	421	441	461	481	501	521
4	24	44	64	84	104	124	144	164	184	204	224	304	321	341	362	382	402	422	442	462	482	502	522
5	25	45	65	85	105	125	145	165	185	205	225	305	322	342	363	383	403	423	443	463	483	503	523
6	26	46	66	86	106	126	146	166	186	206	226	306	323	343	364	384	404	424	444	464	484	504	524
7	27	47	67	87	107	127	147	167	187	207	227	307	324	345	365	385	405	425	445	465	485	505	525
8	28	48	68	88	108	128	148	168	188	208	228	308	325	346	366	386	406	426	446	466	486	506	526
9	29	49	69	89	109	129	149	169	189	209	229	309	326	347	367	387	407	427	447	467	487	507	527
10	30	50	70	90	110	130	150	170	190	210	230	310	327	348	368	388	408	428	448	468	488	508	528
11	31	51	71	91	111	131	151	171	191	211	231	311	328	349	369	389	409	429	449	469	489	509	529
12	32	52	72	92	112	132	152	172	192	212	232	312	329	350	370	390	410	430	450	470	490	510	530
13	33	53	73	93	113	133	153	173	193	213	233	313	330	351	371	391	411	431	451	471	491	511	531
14	34	54	74	94	114	134	154	174	194	214	234	314	331	352	372	392	412	432	452	472	492	512	532
15	35	55	75	95	115	135	155	175	195	215	235	315	332	353	373	393	413	433	453	473	493	513	533
16	36	56	76	96	116	136	156	176	196	216	236	316	333	354	374	394	414	434	454	474	494	514	534
17	37	57	77	97	117	137	157	177	197	217	237	317	334	355	375	395	415	435	455	475	495	515	535
18	38	58	78	98	118	138	158	178	198	218	238	318	335	356	376	396	416	436	456	476	496	516	536
19	39	59	79	99	119	139	159	179	199	219	239	319	336	357	377	397	417	437	457	477	497	517	537
20	40	60	80	100	120	140	160	180	200	220	240	320	337	358	378	398	418	438	458	478	498	518	538

FIRST CLASS
PERMIT No. 1702
CINCINNATI, OHIO

BUSINESS REPLY CARD

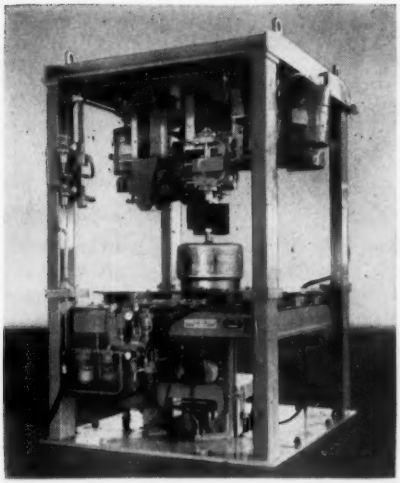
No Postage Stamp Necessary If Mailed in the United States

POSTAGE WILL BE PAID BY—

products finishing

431 MAIN ST.

CINCINNATI 2, OHIO



Automatic Machine for Deburring Holes

ly: two of the wire brush heads deburr the holes on the outside of the basket; another wire brush head deburrs the holes in the bottom of the basket; the fourth brush removes the scale from the inside welded seam which secures the sides to the bottom of the basket.

This machine may be used either as an individual unit or as a part of an automated production line.

Manufacturer: Murray-Way Corporation, P. O. Box 180, Birmingham, Michigan.

For more data circle **170** on Postpaid Card

★ ★ ★

Modular Air Washer

A modular air washer fabricated from polyvinyl chloride (PVC) plastic has been introduced by S & C Manufacturing Co.

This unit has excellent resistance to various corrosives. It is used for removing acid fumes from the air around processing tanks.

By designing it as a "module," capacity can be increased or decreased easily as the need for air washing equipment in a given location expands or contracts.

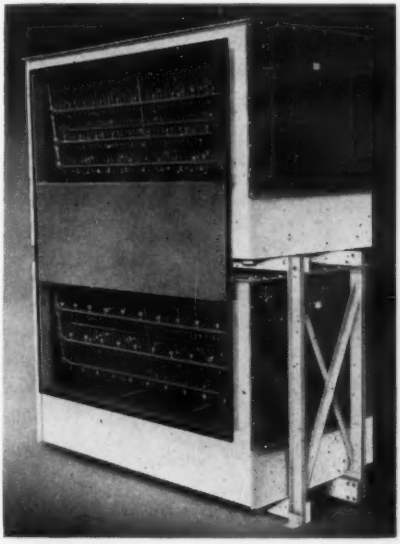
As an example, a 30,000-c.f.m. unit is composed of two 15,000-c.f.m. modules. These may be used in the future as two 15,000-c.f.m. units or more washer modules may be added to the existing unit to increase capacity.

The air washers (except for metal base and steel mounting channel outside the corrosion area) are made entirely of rigid polyvinyl chloride, including frame, tubing, nozzles, fittings and Raschig ring bed. As a result, the unit will not corrode.

The S & C unit consists of a three-section cleaning mechanism that assures removal from the air of 90 to 99 per cent of the contaminants soluble in water or that can be made soluble in water.

Manufacturer: S & C Manufacturing Co., 3533 Cardiff Ave., Cincinnati 9, Ohio.

For more data circle **171** on Postpaid Card



S & C PVC Modular Air Washer

Metals Memos

News about metals and metal products . . .

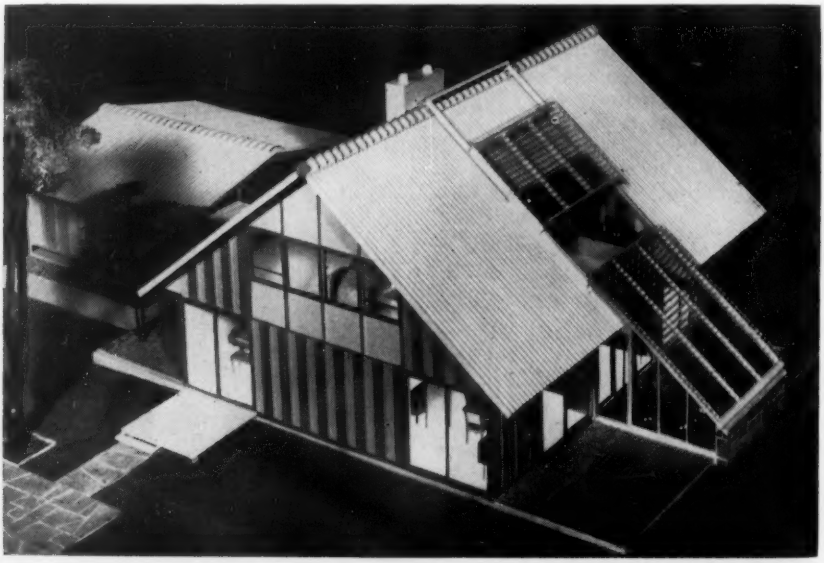
Research Residence

The Ferro Porcelain Enamel Research House is now being erected in a suburban community near Cleveland, Ohio by more than twenty major companies.

The project is designed to test many revolutionary ideas in residential construction. It will be used to explore methods of adapting residential housing components to the techniques of mass production, as well as serving as a proving grounds for advances in plumbing, heating, and wiring systems. The roof, all exterior walls, and all interior walls in the kitchen, bathroom and utility areas will be finished in porcelain enamel in a variety of colors and textures.

Plating Process for Whisker Wires

A glycerine-based bath for electrodepositing cadmium-indium alloys on tiny whisker wires recently won an



Scale Model of the Ferro Porcelain Enamel Research House.

award from the Glycerine Producers' Association. The wires are used as leads to the electrodes of high-frequency transistors.

Receiver of the Glycerine Application Research Award was a team of researchers for Philco Corporation, Lansdale, Pa. The group included Anthony J. Certa, Thomas J. Manns and George L. Schnable.

The method these men developed makes it possible to produce high-frequency transistors on high-speed automatic equipment. Previous methods required tedious hand labor and were not adaptable to mass-production techniques.

Developed after several others were explored, the glycerine bath proved to be the most practical organic-solvent system.

As a bonus, the glycerine that remains on the wire after plating serves as an effective flux during the subsequent soldering operation.

A major part of the transistors used in the electronics industry in the next few years will be made by this method, the Philco research team reports.

Details on the plating process are given in the August, 1959, issue of the *Journal of the Electrochemical Society*, page 690.

NEW BOOKS

Equipment and Advisory Service for the "Tri-Finish" Process. Integrated, trichlorethylene-based degreasing, phosphatizing and painting systems for the new "Tri-Finish" Process are introduced along with an explanation of the new process and the costs involved in a new 6-page illustrated catalog.

The Tri-Finish Process is a recently developed method of continuous degreasing, phosphatizing and painting with trichlorethylene-based materials. Parts are first degreased in trichlorethylene, then phosphatized in a trichlorethylene-based phosphatizing solution, then painted in a trichlorethylene-based paint. They leave the machine dry.

Equipment for the "Tri-Finish" Process is available from G. S. Blakeslee & Co. in three basic systems (either dip or spray type), which can be incorporated into pres-

(continued)

DEPENDABLE PPI PRODUCTS

NEW • DURABLE • LIFETIME
TITANIUM ANODE HOOKS
Titanium Hooks Are Almost Indestructible When Used With — Nickel or Acid Copper Solutions
• *WRITE TODAY FOR FREE LITERATURE TITLED . . .*
Titanium Metal Plating Accessories

PLATING PRODUCTS, Inc.
1509 N. WASHINGTON • KOKOMO, IND.

For more data circle 398 on Postpaid Card

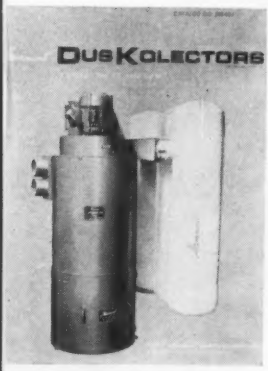
ent finishing operations, large or small. The three systems are: (1) Vapor degreasing and nonflammable tri-thinned painting in a single, compact unit; (2) Vapor degreasing and tri-phosphatizing combined in just two compact units, and; (3) Vapor degreasing, tri-phosphatizing and painting in a continuous compact system.

Blakeslee Advisory Service, which is available without cost, is also introduced in this new catalog to familiarize prospective users with the advantages, adaptability and costs of the "Tri-Finish" Process.

For a copy of the catalog, write Industrial Division, Dept. PF, G. S. Blakeslee & Co., 1844 South Laramie Ave., Chicago 50, Ill.

★ ★ ★

Dust Collector Catalog. Practical, effective ways for solving dust, dirt, and mist collecting problems are described in a 16-page catalog available from Hammond Machinery Builders, Inc. This text contains detailed explanations of how to achieve maximum results with various models in the line of Hammond DusKolectors, as well as general application information. Installation recommendations are also given for specific situations in assembly departments, polishing and buffing departments and crating rooms.



In addition to photographs, cutaway diagrams and floor plans, the bulletin gives features, dimensions, and specifications on each of the models, accessories and extra equipment.

Catalog No. DK-820 is available from Hammond Machinery Builders, Inc., 1622 Douglas Ave., Kalamazoo, Michigan.

★ ★ ★

Improved Baths Solve Lifting of Plated Circuit Foils. By E. C. Rinker, vice president and technical director, Precious Metals Division, Sel-Rex Corporation. 4 pages. Available from Sel-Rex Corp., Dept. 1A, Nutley 10, N. J.

Starting with the specific application and intended service of the printed circuit, this article recommends ways to improve in-service reliability through developments in printed circuit plating technology.

Precious metals and various base metals used in printed circuitry are described in detail with their advantages and disadvantages for specific applications.

Some of the problems discussed include lifting or peeling of the copper foil after the circuit has been placed in service; deformation of the di-electric base material; softening of the adhesive or resin binder between copper foil and laminate; and lifting of the electroplated foil from high tensile stresses.

A table gives recommended thicknesses of electroplate of various base and precious metals.

Free Literature

(Circle numbers on postpaid card opposite page 144 to obtain free literature)

Polishing, Buffing, Degreasing, Cleaning, Barrel Finishing, Plating, Anodizing, Phosphatizing, Baking, Vacuum Metallizing, Chromate Coating, Paint Finishing, Waste Treatment.

1. Barrel Finishing Materials
Bulletin AP-1 describes and illustrates bearing balls, metal-finishing materials, decorative steel shapes. Advantages of each product are discussed in detail. Applications, sizes and dimensional data included. Tabular information on conversion of old Abbott standard ball nomenclature to new, simplified AFBMA nomenclature. Abbott Ball Co.

2. Clear Semi-Gloss Lacquer
Information on Agateen No. 2B semi-gloss lacquer. Agate Lacquer Mfg. Co., Incorporated.

3. Chemical Polish for Aluminum
Information on Alchemize Chemical Polishing Concentrates. Alchemize Corp.

4. Chromium Chemicals
Bulletin 52 contains technical information on chromic acid and other products. Solvay Process Div., Allied Chemical Corporation.

5. Clear Protective Coating
Data sheet on Irilac No. 1000, a clear, water-soluble protective coating that provides corrosion resistance and resistance to fingerprinting and abrasion without changing the appearance of the metal. For use on bare metal, conversion coated surfaces, electroplated finishes. Allied Research Products, Inc.

6. Vibrating Finishers
New catalog describes, illustrates and provides technical information on seven different vibratory finishing machines with capacities from ¾ gallon to 17 cubic feet. According to the manufacturer these machines will finish stampings, castings, forging and machined parts 10 to 100 times faster than conventional tumbling units, yet produce excellent finishes. Almco, Queen Products Div., King-Seeley Corp.

7. Anodes for Acid Copper Plating
Reprint of a technical paper that describes a synthesized anode containing small quantities of phosphorous, tellurium, selenium and silver. The American Brass Co.

8. Electrocleaner
Information on Apex "Electro 100" cleaning compound, a general-purpose low-current-density electrolytic cleaner. Apex Alkali Products Co.

9. Stainless Steel Buffing Compounds
Data sheet lists buffing compounds for stainless steel in order of descending abrasive size, tells about outstanding features of each compound. Ardco, Inc.

10. Abrasive Blasting Equipment, Supplies
Bulletin HPB 60-1 lists a complete line of abrasive blasting equipment, accessories and supplies. Automation Services, Incorporated.

11. Gas-Scrubbing Systems
Bulletin 957, 4 pages on wet-type systems for removing dust, fumes and mist from the air. Automotive Rubber Co., Incorporated.

12. Laboratory Demineralizers
Bulletin No. 140 illustrates and describes both regenerative and replaceable-cartridge-type demineralizers for laboratory use. Also describes an instrument for measuring the purity of water. Barnstead Still & Sterilizer Co.

13. Cold-Degreasing Fluid
Information on Barco Cold Metal Degreaser Q200. For use on ferrous and non-ferrous metals. Barco Chemical Products Co.

14. Plating Racks
Illustrated bulletin on Thinker Boy plating racks, which are made of stock insulated parts that assemble with a leakproof seal. Belke Manufacturing Co.

15. Chromic Acid
Information on BFC chromic acid. Better Finishes & Coatings, Inc.

16. Buffs for Automatics
Literature on buffs designed for use on automatic buffing machines. Riegel Textile Corp., Bias Buff & Wheel Div.

17. Electrostatic Spraying Equipment
Information on Binks modular electrostatic spraying equipment. Binks Manufacturing Co.

18. Liquid-Processing Machine for Small Parts
Data sheet on the portable Bix Tumbling Unit, a motorized tumbling "cage" that holds small parts while they are being tumbled in washing, pickling, blackening or annealing solutions. Bix Co.

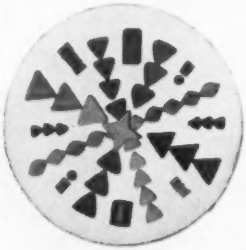
19. Cleaning Equipment
Complete information on Blakeslee vapor degreasers and metal parts washers. G. S. Blakeslee & Co.

20. Tack Cloth
Literature on treated cloths that pick up dust and lint prior to paint finishing. Bond Chemical Products Co.

21. Self-Bonding Nameplates
Bulletin No. 161-A describes and illustrates self-sticking Poly-Plates. These nameplates identify the product, decorate and protect. W. H. Brady Co.

22. Metal Processing Products
A six-page folder describes the products made by Bruce Products Corporation: buffing compounds, drawing compounds, cutting oils, non-rust oils, spray booth coatings, cleaners, polishing wheels, die-cut release agents. Bruce Products Corp.

FORTUNE
BARREL FINISHING MEDIA
FOR ANY TUMBLING NEED!



No jamming, or "rolling over" action.

Special shapes prevent jamming and rapid deburring saves costs.

Write for complete information.

FORTUNE INDUSTRIES, INC.
11770 DEXTER RD. CHELSEA, MICH.
Chelsea Phone—GR 9-3621

For more data circle 399 on Postpaid Card

23. Flock Finishing
A 12-page bulletin illustrates profitable uses and applications for Cellusuede flock coatings. Cotton, rayon and acetate fibers used to produce colorful finishes that help to silence noise. Cellusuede Products, Inc.

24. Complete Finishing Systems
Catalog No. 200 describes company's design, fabrication and installation services for complete finishing systems. Includes information on equipment for pre-paint treatment, paint application, paint drying and baking, make-up air and exhaust systems. Contains descriptions of typical installations and detailed information on indvidual components. Cincinnati Cleaning & Finishing Machinery Co.

25. Immersion Heaters, Fused-Quartz
A four-page folder describes Clepco fused-quartz immersion heaters for difficult acid heating jobs. Includes specification tables, photos of typical installations, list of features, application data, information on controls and operating costs. Cleveland Process Corp.

26. Rhodium Plating Instructions
Handy pocket-sized booklet gives complete instructions for rhodium plating, includes data on solution preparation, work preparation, temperatures and current densities, tanks, anodes, and so on. Sigmund Cohn Mfg. Co., Inc.

27. Mechanical Vacuum Pumps
Bulletin 8-15. Six pages on a line of oil-sealed rotary vacuum pumps which produce ultimate pressures of 2×10^{-3} mm. Hg or less. Complete information on features, construction, maintenance, accessory oil filter system, specifications. Consolidated Vacuum Corporation.

28. Pickle for Aluminum Castings
Fact Sheet No. 45 describes Kenvert No. 45, a non-fuming pickle for aluminum castings. A powder, it is added to nitric acid to whiten and brighten aluminum castings. Sheet gives information on equipment required, how to use, control, etc. Conversion Chemical Corporation.

29. Electrocleaners
Information on Cowles electrocleaning products. Cowles Chemical Co.

30. Bronze Powders
Color card shows 33 colors of bronze-like finishes that can be produced from stock Cres-Lite bronze powders. Crescent Bronze Powder Co.

31. Paint-Decorating Equipment
Information on a line of paint-decorating equipment: high-pressure mask washers, nickel electroformed masks, holding fixtures, automatic painting machines. Also vacuum plating racks. Deco Tools, Inc.

32. Phosphate Scale and Sludge Remover
Information on Detrex M-10, a product that removes phosphate scale, hard-water scale and insoluble salts from pipes—inside and out—and from walls and coils within the phosphate zone. Detrex Chemical Industries, Inc.

33. Tack Rags
Four-page folder describes advantages of Detroit Handy Tac Rags. Detro Sales Co., Inc.

34. Paint-Finishing Equipment
Illustrated index of the complete finishing systems available from the DeVilbiss Co. Information on spray guns, automatic spray coaters, flow and dip coaters, industrial ovens, air compressors, dust collectors, spray booths, industrial power washers, hot spray systems, paint tanks and pumps, hoses and connections, phosphatizing systems. Form 325-1. DeVilbiss Co.

35. Vapor Degreasing
"Vapor Degreasing with Diamond Perchlorethylene" is the title of a 12-page technical bulletin that presents data on 13 major advantages of vapor degreasing prior to painting, plating and other finishing operations. Includes sections on essentials of vapor degreasing equipment, methods of scheduling vapor-degreaser cleanouts and solvent distillation. Diamond Alkali Co., Chlorinated Products Div.

36. Cleaner-Phosphatizer
A four-page folder on Divobond, a material that cleans and phosphatizes in one operation, produces no scale. Diversey Corporation.

37. Tumbling Media, Sintered
Bulletin describes a new type of metal barrel-tumbling media that is produced by a sintering process. Dixon Sintaloy, Incorporated.

38. Drying and Baking Booklet
Data Booklet D117 shows how heating units and ovens of all sizes and shapes can be built at low cost from prefabricated interlocking infrared sections. Dry Clime Lamp Corp.

39. Copper Plating Chemicals
Literature describes "Coppralyte" Copper Plating Chemicals. E. I. du Pont de Nemours & Co. (Inc.).

40. Stripper
Folder describes No. 153 Stripper, a nonflammable volatile solvent-type stripper with very little toxicity. Has excellent penetrating properties, is said to be useful in removing coatings that are difficult to remove, such as melamines, epoxies, vinyls, plating rack coatings. Dytex Chemical Co.

41. Copper Plating Process, Bright
Manual on McCoy's new 23-11 organic process for leveling bright cyanide copper plating, which is said to produce brilliant mirror-like deposits at current densities from one to 100 a.s.f. Electrochemical Products, Inc.

42. Electropolishing Stainless Steel
Literature on baths for electropolishing stainless steel includes operating instructions for two of these baths. Electro-Glo Co.

43. Rinse-Water Additives
Literature on Entek 45 and Entek CU-55, rinse-water additives, which coat metal surfaces with an invisible shield against the atmosphere. Prevent corrosion, pitting, spotting out, green salt formation, improve solderability, lacquer adhesion. Enthone, Inc.

44. Copper Anode
Information on the new Asarco-Max copper anode. Federated Metals Div., American Smelting & Refining Co.

45. Tumbling Media
Information on preformed tumbling media and abrasive products. Over 200 sizes and bonds available. Fortune Industries, Inc.

For more data circle 400 on Postpaid Card

46. Infrared Sections
Catalog 103, two pages on low-cost, do-it-yourself oven components. Fostoria Corporation, Infrared Div.

47. Plating Barrels
Information on G-S plating barrels. Withstand temperatures up to 220 deg. F., loads to 275 pounds. Bussed for heavy amperage. "Cogged V-Belt" drive no gears in solution. The G. S. Equipment Co.

48. Painting Machine
Information on the new Gasway Kinetic Kurtain Coater. Gasway Corporation.

49. Primer
Information on Glidden Nu-Pon primer, a tough, flexible foundation for organic finishes. The Glidden Company, Industrial Paint Div.

50. Chemical Polishing Solutions
Information on a line of chemical polishing solutions. Globe Chemical Co., Inc.

51. Belt Grinder
Bulletin 336-T describes and illustrates Model UBG-50 universal belt grinder, a machine with two heads—one for internal and flexible-belt grinding, one for contact wheels, flexible-belt, platen and contour-wheel grinding. Hammond Machinery Builders, Inc.

Production Decorating
USE DECO TOOLS
● HIGH PRESSURE MASK WASHERS
● NICKEL ELECTROFORMED MASKS
● HOLDING FIXTURES
● VACUUM PLATING RACKS
● AUTOMATIC PAINTING MACHINES
● PRODUCTION DECORATING
DECO TOOLS INC.
4321 HARRIS ST.
TOLEDO 13, OHIO
For more data circle 401 on Postpaid Card

52. Bright Cadmium Plating
Instruction manual for operating the Cadalume L Process. General information, operating instructions, effect of constituents, proper conditions, equipment, analytical requirements, etc. Hanson-Van Winkle-Munning Co.

53. Centrifugal Deburring and Polishing Machine
Information on the Harperizer, a new machine for quickly producing fine, smooth finishes on parts by processing in loose abrasives without fixtures. Harper Buffing Machine Co.

54. Copper, Cyanide Bright
Four pages on Cynorex, a high-speed, high-efficiency bright copper plating solution that produces smooth, ductile deposits. Harshaw Chemical Co.

55. Degreasing Solvent
Data Sheet No. 814 gives specifications, description and uses for Nialk Trichlorethylene, metal degreasing grade. Hooker Chemical Corp.

56. Cadmium-Zinc Chromate Coating
Technical bulletin on Rodip CZ-10, a material formulated to produce a bronze-colored chromate coating on cadmium or zinc plated parts. Good corrosion resistance, excellent base for paint. R. O. Hull & Co., Inc.

57. Tack Rags
Literature on Ideal Tack Rags, specially treated cloths that pick up dust and other particles just prior to application of an organic finish. Ideal Chemical Co.

58. Brass Additive
Information on an additive formulated to increase efficiency and throwing power of brass plating solutions. Jelco Finishing Equipment Corp.

59. Wood Tanks
Information on wood tanks for pickling and plating. Kalamazoo Tank & Silo Co.

60. Liquid Cleaner
Bulletin P-12591 describes a patented multi-purpose liquid cleaner which removes grease, carbon, ink, oil, soot, dirt and other deposits from hard surfaces without heat or danger of fire. Spray on, wipe off. Useful as a preliminary degreaser before alkaline cleaning and before pre-spotweld etch. Kelite Corp.

61. Room-Temperature Phosphate Coating
Technical bulletin discusses methods of cleaning and phosphatizing at room temperature. Klem Chemicals, Inc.

62. Plating Course
Information on a correspondence course in electroplating. Joseph B. Kushner Electroplating School.

63. Vibratory Finishing Equipment
Details on the Lorco vibratory finisher, a finishing machines that vibrates a load of parts and media to produce smooth, burr-free surfaces. Lord Chemical Corp.

64. Brightening Aluminum Alloys
Data Sheet No. 55 describes an acidic solution for producing a bright lustre on non-silicon aluminum alloys. Called Metex Electropolish BA, this product improves the finish, helps remove small burrs, is useful for polishing before anodizing. MacDermid, Inc.

65. Wash and Rinse Machine
Information on a machine that's designed for cleaning parts between machining operations and prior to inspection. The MacLeod Co.

66. Cleaning and Preparing Metal Surfaces
A 28-page guide to modern metal-cleaning and preparation methods. Magnus Chemical Co., Inc.

67. Compounds for Barrel Processing
"Permag Compounds for Barrel Processing" is the title of a manual that gives basic information on barrel processing compounds, specific data on deburring and roughing, coloring and burnishing, descaling, rust prevention, neutralizing, other topics. Includes methods for calculating volumes of barrels, notes from case histories. Magnuson Products Corp.

68. Plating and Processing Machine
Bulletin U-658. Four pages. Illustrates single-line automatic plating and processing machines. Meaker Co., Sub. of Sel-Rex Corp.

69. Coating with Nacreous Pigments
Four-page brochure discusses coating vehicles, techniques, undercoats, colors, spray-coating techniques and special color effects in applying pearlescent finishes. Mearl Corporation.

70. Rectifier Conversion Kit
Catalog on silicon conversion kits for plating rectifiers. Dresser Electric Co.

71. Vibrating-Rotating Barrel Finisher
Bulletin 255, four pages on the Vibra-slide, a machine that vibrates and rotates a load of parts and media simultaneously. This is said to reduce time of tumbling, increase work output. M-F Equipment Company.

72. Automatic Cleaning Machines
Information on automatic, conveyorized cleaning and metal treating machines. Metalwash Machinery Corporation.

73. Vacuum Metallizing Service
Information on Company's vacuum metallizing facilities. Equipment and know-how to handle production runs quickly and efficiently. Metaplast Process, Inc.

74. Plastic-Coating Process, Solventless
Six-page bulletin describes Miccron process for application of plastic resins as protective coatings, using the fluidized bed method. Michigan Chrome and Chemical Company.

75. Glass Shot
Information on Microbeads Glas-Shot, microscopic glass beads for use in wet and dry blasting equipment for cleaning, polishing, peening and finishing. Microbeads, Inc.

76. Paint Mixer
Data sheet on Miracle paint rejuvenators, which mix paint without removing the lid from the container, by shaking the can vigorously. Miracle Paint Rejuvenator Co.

77. Rust Preventive, Detergent, Drying Aid
Data sheet on Composition DR, a liquid compound that is added to water to produce a solution that has detergent properties, speeds drying time, inhibits rust formation. Can be used in tumbling operations. Mitchell-Bradford Chemical Co.

For Platers, Silversmiths, Jewelry Mfgrs., Makers of Watches, Clocks and Electronics and other metal finishers.
Supplied in straight or crimped brass, steel, nickel silver or stainless steel wire in sizes .0025 to .006 and in bristle, fibre or Nylon. Special sizes and shapes to order.
Write (Dep't. P) on your letterhead for catalog and price list.

DIXON & RIPPEL, INC. Box 116 Saugerties, N. Y.
ESTABLISHED 1856

For more data circle 402 on Postpaid Card

78. Drum-Handling Tools
Literature on a line of drum-handling tools and equipment: drum wrenches, drum upenders, carts and so on. Morse Mfg. Co., Inc.

79. Small Chromium Plating Unit
A four-page folder describes the Krome-King, a plating setup that is useful for reclaiming worn tools and parts, mismachined parts, etc. Economical, easy to operate, includes all necessary equipment and solutions for depositing uniform thickness of chromium. National File Co.

80. Chemical Nickel Coating
Technical bulletin No. 258 describes the Kanigen process for chemically depositing nickel. Provides uniform thickness on complex shapes. Kanigen Div., General American Transportation Corp.

81. Centrifugal Dryer
Form No. 4083-KD-459-S gives complete information on the Model 20 New Holland Kreider Centrifugal Dryer, which spin dries a basket of small parts in just 15 seconds. New Holland Machine Co.

82. Fume-Control Equipment
A four-page bulletin on the Niehaus fume separator, a combination exhaust and fume-separating unit developed for electroplating and chemical industries. Washes corrosive fumes from the air, makes recirculation possible. Niehaus Bros., Inc.

83. Barrel Finishing Machined Parts
A report on methods of barrel finishing machined parts such as aircraft gears tells how barrel finishing improves surface finish and fatigue strength, removes burrs, forms uniform radii and reduces production costs. Norton Co.

84. Cleaner-Phosphatizer
Bulletin on Oakite Cryscoat 187, a product that can be dissolved in water to make a solution which will clean and convert the surface of steel to a phosphate coating in one operation. Oakite Products, Inc.

85. Electronic Adjustment Device for Buffing Machines
Literature on the Adjusta-Matic, a "packaged" electronic device that helps reduce wear on buffing wheels, cut compound consumption, produce more uniform finishes. Packer Machine Co.

86. Bonderites for Aluminum
A four-page folder on Bonderite coatings for aluminum describes Golden Bonderite and Green Bonderite, has data on methods of application, salt-spray tests. Parker-Rust Proof Co.

87. Die-Cut Masks
Data on die-cut masks for protecting apertures and shaped areas from paint during finishing operations. Pee Cee Tape & Label Co.

88. Cleaning Machines
Folder describes Pennsalt machines for metal surface preparation. Several different types and sizes are described and illustrated. Pennsalt Chemicals Corporation.

89. Glove-Selection Guide
Handy pocket folder offers a comprehensive guide to selecting the correct glove for a particular industrial application. Includes detailed chemical-performance ratings, outlining tests made with various reagents and solvents. Pioneer Rubber Co., Inc.

90. Titanium Anode Baskets
A 4-page folder on scrap-saver anode baskets. Provide excellent electrical contact for both nickel and copper scrap. Resist corrosive solutions. Plating Products, Inc.

91. Disposable Spray Booth Air Filters
Folder describes and illustrates the use of RP paint arrestors, disposable filter pads that are used in spray booths to remove paint solids from exhaust air. Research Products Corp.

the Sensational

"400"

by Ardco

For Mirror Finishing on:
Cold Chrome Plating on Aluminum

To Obtain: Clean—Superbright Finishing—Try the sensational "400" Buffing Compound by Ardco.

For further information—or samples—contact

ARDCO, INC.

5000 W. 73rd ST. • CHICAGO 38, ILL.

For more data circle 403 on Postpaid Card

92. Clear Lacquers
Data on clear lacquers especially formulated to be used in protecting highly polished metals and those that tarnish easily. Randolph Products Co.

93. Electrostatic Spray Gun, Hand-Held
Twelve pages. "Spray Painting with the Electrostatic Hand Gun." Principles and uses of recently introduced hand-held electrostatic spray painting gun. Photos of production applications. Ransburg Electro-Coating Corp.

94. Ovens
Bulletin 127 describes and illustrates batch and conveyor-type ovens of many different sizes and types. Truck-type, wicket-type, vertical-drawer, rack-type, many others. W. S. Rockwell Co.

95. Air Processing Equipment
A 12-page bulletin includes data on ovens, dryers, air heaters and curing systems for use in such industries as pulp and paper, paint finishing, rubber and foam rubber, foundries, plastics and chemical processing. Bulletin No. S-5. J. O. Ross Engineering Corporation, Div. of Midland-Ross Corp.

96. Finishing Systems
New 4-page catalog describes machinery and systems for metal surface processing (cleaning, washing, rinsing, drying, spraying, flow and dip coating). Includes information on drum-type machines, conveyor machines and systems, combination drum and conveyor machines, and complete automatic finishing systems. Ransohoff/Roto-Finish.

97. Spray Hose
A four-page folder on Synflex Universal Spray Hose, which is unaffected by any conventional solvent system used in lacquers, enamels or water-based paints. Excellent mechanical strength, flexibility, light weight. Synflex Products Div., Samuel Moore & Co.

98. Filter Pump Units
Bulletin 202. Data on corrosion-proof pumps and filter units for filtering corrosive plating solutions. Includes information on construction features, solutions that can be filtered, rate of filtration, operation, back-washing and reversal switch. Sethco Manufacturing Co.

99. Detergents
Four-page booklet entitled "New Horizons in Detergent Chemistry" lists and describes cleaning chemicals, phosphate coatings, water-wash compounds, steam-cleaning compounds, rinse aids, other products. Solventol Chemical Products.

100. Solvents
Information on acetates, alcohols, aliphatic hydrocarbons, alkanolamines, aromatic solvents, chlorinated hydrocarbons, glycols and polyglycols, glycol ether, other solvents. The Solvents and Chemicals Group.

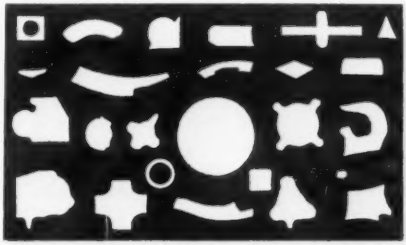
101. Save Dirty Solvents
Data on the company's services of reclaiming dirty solvents. Solvents Recovery Service, Inc.

102. Finishing Systems
A 36-page book describes and illustrates complete finishing systems and components such as washers, dryers, bake ovens, flow coat systems, dip-painting systems, spray painting systems, others. Includes diagrams of several systems, comparison of operating costs for Spra-Con systems vs. other types. Also has a page of useful engineering formulas and constants. The Spra-Con Company.

103. Spray Gun, Airless
Bulletin 95A describes Model H 22HPSSTC GunJet for airless spray painting. Listing of major spray-tip patterns, materials, coverage. Spraying Systems Co.

104. Zinc Plating Additive
Data on Zinc Brite, a cleansing and purifying agent for cyanide zinc plating solutions. Sulphur Products Co., Inc.

105. Selenium Rectifiers
A four-page folder gives specifications for complete line of vacuum-process selenium rectifiers. Syntron Co.



Pre-Cut Masks Speed Finishing

Die-cut to close tolerances. Self-sticking — go on *fast*. Protect from finishing to inspection. Hundreds of stock shapes and sizes. Specials to order.

Narrow-Slit FINE LINE Masking Tapes — Precision slit from 1/64" to 1/4" (± .005"). 30 yd. rolls.

FREE Samples and Literature . . . Write:

W. H. BRADY CO. 40B

746 W. Glendale Ave., Milwaukee 9, Wis.

For more data circle 404 on Postpaid Card

106. Etch Primer
Data on Gripalloy, an etch primer available in black and colors. Used as primer or finish coat. Tenax Finishing Products Company.

107. Cob Grit for Blasting, Tumbling
Information on corn cob grits that are used as tumbling media and in blast cleaning. Ti-Co Industries, Inc.

108. Belt Sanders
A 4-page folder describes Model TOP Timesaver "Speedbelt" Sander. It details the construction features of this unit, gives specifications for four models. Several applications are shown. Timesaver Sanders.

109. Titanium Anodizing Cylinder
Data sheet describes and illustrates an all-titanium anodizing cylinder that is useful in bulk processing of bolts, rivets, screws. Requires no stripping, resists acids. Titanium Products Corporation.

110. Brass Plating Solution
Technical bulletin on True Brite brass solution, which is available in a variety of colors. True Brite Chemical Products Co.

111. Bright Nickel
Technical Bulletin No. NP-724 tells how to operate Udylite Bright Nickel Process No. 724. Includes complete data on functions of additives, temperature, pH, suggestions for avoiding troubles. The Udylite Corporation.

112. Periodic Reverse for Alkaline Descaling
Data sheet on the application of periodic reverse to alkaline derusting and descaling. Unit Process Assemblies, Inc.

113. Copper Anodes
Information on "Phosphor-Brite" rolled copper anodes for acid copper plating baths. Univertical Corp.

114. Automatic Spray Machine
Brochure describes equipment for automatically spraying one, two or three surfaces of generally oval or rectangular-shaped pieces. Accommodates varying lengths, produces fine definition and paint demarcation. Includes a list of spray painting troubles and suggested remedies. Conforming Matrix Corp.

115. Heat-Resistant Finish
Sicon, a finish that withstands high temperatures, said to be heat stable (up to 1,000 deg. F.), is fully described in a brochure. The brochure presents a complete table of properties, characteristics and application data. It describes Sicon as a finish that is highly resistant to moisture, oxidation and ultra-violet radiation. Midland Industrial Finishes Company.

116. Metallizing Material
Staples made of extremely pure aluminum and prepared for use in vacuum metallizing are described in literature available from D & W Tool & Findings, Incorporated.

117. Water-White Lacquer
Information on Daconite 5600 clear lacquer, a ready-to-spray lacquer that is said to have excellent paleness and color retention. James B. Day & Co.

118. Titanium Racks for Anodizing
Illustrated brochure on the company's line of all-titanium anodizing racks. LeVita Industries, Inc.

119. Plating Stop-Off
A four-page folder describes Seal-Stop, a plastic coating made specifically for use as a stop-off in plating. Tells how to use, shows typical applications, lists advantages. Seal-Peel, Inc.

120. Buffing Compositions
Bulletin describes 11 special liquid compositions for buffing and coloring. Grade evaluations on liquid tripoli and liquid stainless compositions. Information on customer service lab. Frederic B. Stevens, Inc.

TITANIUM
for
ANODIZING RACKS
WIRE - ROD - BAR - STRIP
•
NUTS & BOLTS
•
STANDARD RACKS & CLIPS
•
CATALOG

Titanium Products Corp.
9301 FRENCH ROAD, DETROIT 13, MICH.
WAlnut 1-3800

For more data circle 405 on Postpaid Card

121. Dry Abrasive Blasting Machine

Data sheet describes and illustrates a dry abrasive blasting machine that is said to produce coarse or fine finishes. Trinity Tool Co.

122. Buffs

Data sheet describes Buff Type No. 20-RD, a heavy-duty buff made of sisal twine, used for finishing stainless steel, brass and other metals. Geo. R. Churchill Co., Inc.

Classified Advertising

SOUTH FLORIDA TEST SERVICE, INC.

Testing—Inspection—Research—Engineers

Consultants and specialists in corrosion, weathering and sunlight testing.

4301 N. W. 7th St. • Miami 44, Florida

DIRECT SALES REPRESENTATIVE WANTED

Well known manufacturer of Industrial Pumps and Spray Equipment requires two sales representatives—one for east coast and one for west coast. Requires some background in industrial finishing. Salary and bonus arrangement. Write Box 73, c/o Products Finishing, 431 Main St., Cincinnati 2, Ohio.

FOR SALE

Small Black Oxide Setup.

Complete—All tanks and heating coils. Call collect, FI 9-4291, North Vernon, Indiana.

CHEMIST

SITUATION OPEN—Chemist for Plating Laboratory in large finishing Company, Newark, New Jersey. Experience in analysis and control. Reply submitting full resume of experience to Box No. 72, c/o Products Finishing, 431 Main Street, Cincinnati 2, Ohio.

DESIGN DRAFTSMAN—Assume responsibility for design and development of solution filtration equipment and automatic electroplating machines, with AAA-1 multi-division manufacturer with executive offices in Nutley, N. J. This is no routine draftsman's job but an opportunity to watch your work take form in actual production. Send complete resume, including past earnings to: The Meaker Co., Subsidiary of Sel-Rex Corp., Nutley 10, N. J., Att.: Mr. Peter Arnold.

PAINT FOREMAN WANTED

Supervise job shop metal cleaning and painting; doing appliance quality work. Must know everything about metal preparation, scientific paint thinning and baking. Ideal supervisory position. Send resume to:

REX METAL-CRAFT, INC.

1717 Gent Avenue Indianapolis 2, Indiana

NEW AUTOMATIC DEGREASER

Never been used. Automatic cross rod conveyorized CIRCO degreaser. Vapor-Spray-Vapor. Complete, with solvent recovery still, pumps, storage tank, filters, work baskets, controls. Solid stainless steel construction, var. speed drive. Cap. 5000 lbs. steel per hr. Basket size 24" x 20" x 8" high. Original price $16,500. Best reasonable offer for quick sale. CHEMICAL SERVICE CORPORATION, 82 Beaver St., N. Y. C.

Space on this page is available for advertising of Services, Employment, Used Machinery & Equipment, Etc. Sold in inch units, one col. wide. Rate: $25 per col-inch.

PRODUCTS FINISHING

431 Main St. Cincinnati 2, Ohio

MANUFACTURERS REPRESENTATIVES

Old established manufacturer wants qualified representation on industrial washers, paint bake and dry-off ovens and complete paint finishing equipment. Several choice areas available. All replies treated with confidence. The MacLeod Company, Box 452, Cincinnati 41, Ohio.

SALESMAN—Industrial Finishes; wanted by a manufacturer of a complete line of Industrial Finishes for Kansas and Michigan territories. Salary and commission. All replies confidential. Address Box No. 74, c/o Products Finishing, 431 Main St., Cincinnati 2, Ohio.

news of the finishing industry

company news
new positions
new plants
meetings

NEW PLANTS

Samuel Moore & Co. Expands Plant

A seventy per cent expansion of plant facilities is underway at Samuel Moore & Co., Mantua, Ohio manufacturer of hoses for spray painting and other plastic products for industry. This marks the sixth expansion for this company since its 1947 move to its present facilities. Construction will be completed this summer.

Williamsville Buff Moves to Utica

John H. Nelson

Williamsville Buff Company, Inc., recently began operations on the premises of Divine Brothers Company, Utica, New York.

The machinery and equipment of the Connecticut plant has been moved to Utica, and the business is continuing as usual at the new location.

Williamsville buffs were formerly manufactured by the Williamsville Buff Division of Bullard Clark Company, a 67-year-old polishing and buffing manufacturer in Danielson, Connecticut.

Williamsville buffing and polishing wheel products will be manufactured under the same brand. The company will operate under the sales management of John H. Nelson, who has been with the Williamsville organization for 14 years.

New Laboratory for Electrochemical Products

E. H. McCoy, president of Electrochemical Products, Inc., has announced the opening of a new laboratory and customer service center at 2364 N. 30th St., Milwaukee, Wisconsin.

The new laboratory (with 5,000 sq. ft. of floor space) was made necessary by the rapid growth of the company's activities.

Mexican Ceramic Chemicals Plant Goes Into Production

The first Mexican facility for manufacturing ceramic opacifiers recently began production in Monterrey, Mexico. It is operated by Industrias M&T de Mexico, a subsidiary of Metal & Thermit Corporation, New York.

Industrias M&T de Mexico was formed a year ago by M&T in conjunction with a group of Mexican industrialists headed by Jose T. Mata, president of Productos de Zinc Y Plomo.

Enthone Adds Warehouse in New York State

Enthone, Inc., New Haven, Connecticut, has doubled its warehousing facilities in New York State with the establishment of a complete stock of Enthone chemicals at 921 N. State St., Syracuse. This is in addition to the Binghamton warehouse of Austin F. Fletcher, Inc., Enthone distributor.

The Syracuse warehouse will serve the Rochester-Syracuse-Utica area while Austin F. Fletcher, Inc. will continue to serve the Binghamton-Elmira area. Edwin C. Elliott, who recently joined Enthone as sales engineer, will supervise warehousing in Syracuse.

Unit Process Moves

Unit Process Assemblies, Inc. has moved to larger quarters at 53-15 37th Ave., Woodside 77, N. Y.

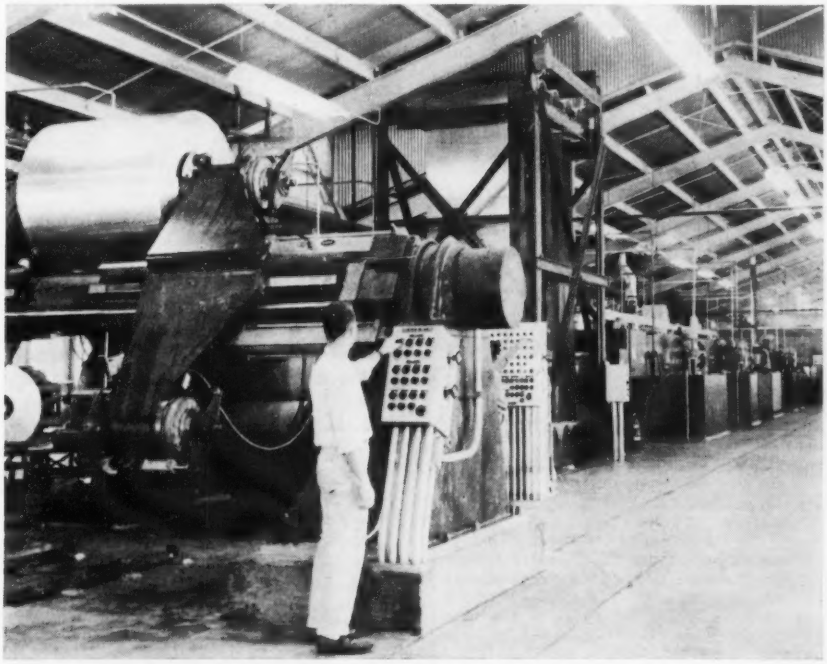
Unit Process Assemblies manufactures the Dermitron non-destructive coating thickness tester and periodic-reverse equipment.

COMPANIES

Largest Roller Coating Line Installed at Kaiser

Complete facilities for producing painted aluminum coils have been placed in operation at Kaiser Alumi-

(continued)



New 66-inch roller coating line at Ravenswood Works of Kaiser Aluminum & Chemical Corporation. In the foreground is coiled aluminum which undergoes processing in the automatic equipment. In the background is the coater room where the aluminum is roller coated in a wide variety of colors and paints. This line is the largest in the industry. (Photograph courtesy Kaiser Aluminum & Chemical Corporation, Oakland, California.)

num & Chemical Corporation's Ravenswood, W. Va., rolling mill.

The new 66-inch paint line — the largest in the industry—allows for the coating of aluminum in coil form in gauges ranging from 0.006 to 0.064.

End product of the paint line is roll coated coil stock called "Kaiser-Kote." Major end uses for the product include awnings and residential siding, license plates, miscellaneous building materials and panels for mobile homes.

Consolidated Vacuum Opens Sales Office in Washington, D. C. Area

Consolidated Vacuum Corporation, Rochester, New York producer of vacuum pumps and related equipment has opened a Washington, D. C. district sales and service office. Lionel B. Buraks is field engineer-in-charge.

The Alexandria, Va. office is intended to give better coverage to the many nearby government agencies and industrial facilities concerned with high vacuum technology.

MacLeod Company Expands, Diversifies

The MacLeod Company, Cincinnati manufacturer of abrasive blast-cleaning equipment and dust-collecting systems, recently expanded its facilities to include the design, manufacture, and installation of all types of metal cleaning, phosphatizing and finishing equipment, bake ovens, and paint spray booths.

Organizational changes involved in the expansion include the appointment of Paul J. Seiwert as chief chemical engineer, and Howard L. Noneman as sales manager.

Paul J. Seiwert

Howard L. Noneman

Ultrasonic Industries Forms Canadian Subsidiary

Ultrasonic Industries Inc., Albertson L. I., New York, has formed a Canadian subsidiary, Ultrasonic Industries (Canada) Ltd., Toronto, Ontario. It is the first of several such companies contemplated by UI in the development of international markets for its diSONtegrator ultrasonic cleaning equipment and other ultrasonic devices.

UI (Canada) is the first company exclusively devoted to ultrasonics to be incorporated in Canada. Initially, the Toronto based company will direct the marketing, distribution and service activities for its parent U. S. company in Canada's rapidly expanding technical economy. The new organization will act as sole sales agent, coordinating the affairs of diSONtegrator distributors throughout the Dominion.

Julian Conway is president of the new company. Other officers and directors are as follows: Paul M. Platzman, chairman of the board; Herbert

THAT EXTRA SOMETHING!

"I have been looking for a course of this nature for some time to supplement what I have been able to learn through books or experience. On the basis of the first lesson, it looks as if I've made a wise choice," writes E. R. T., metallurgist-foreman of one of the largest strip plating mills in the midwest. Looking for that extra something in plating know how? Try ELECTROPLATING KNOW HOW! Write Dr. J. B. Kushner, Electroplating School, Box 2066, Evansville 14p, Ind., TODAY.

For more data circle 406 on Postpaid Card

A. Frankel, vice president and director; Barbara A. Jewett, secretary-treasurer and director and Harold S. Remz, director.

Assisting Mr. Conway will be Warren M. Givins, distributor sales manager and Dick Richards, industrial sales manager.

Acoustica Inaugurates Long Island Marketing and Engineering Division

Acoustica Associates, Inc., with main offices and plants in Los Angeles, Calif., recently opened the headquarters of its new eastern marketing and engineering division at Roosevelt Field, Long Island. The new office is at 600 Old Country Road in the Franklin National Bank Building, Garden City, L. I., New York.

Robert L. Rod, Acoustica president, announced that the new division will market the company's complete line of ultrasonic cleaning systems; ultrasonic liquid-level gaging and flow-measuring equipment; fluorescent lighting products; and piezoelectric ceramics.

Personnel appointed to the new eastern headquarters on Long Island include William Katsara, Acoustica's eastern regional gaging equipment sales manager; Maurice Howell, eastern regional cleaning system sales manager; Arthur Liers, eastern service manager; and Arthur Kay with Tony DeBetta, Ender-Monarch area representatives. Samuel Markel, special assistant to Mr. Rod, will be in charge of Acoustica's electronic subcontracting activities.

FOR FANCY FISHERMEN, here's a gold plated spinning reel. Its manufacturer, Zebco Company, Tulsa, Oklahoma, recently began making the covers for these reels from brass instead of stainless steel. The fishing-tackle maker says the brass (product of Metals Div., Olin Mathieson Chemical Corporation) is easier to fabricate and prefinish than stainless steel used on earlier models.

★ ★ ★

Color "Tree" Grows at Design Show

A color "tree" designed to show the colors and textures offered by Metal & Thermit Corporation's recently announced spray-applied vinyl finishes highlighted the product's first public showing at the Design Show, recently held in New York City.

The color "tree" consists of more than 150 coated steel and aluminum panels in 15 colors. The panels include examples of smooth finishes, textured finishes on smooth metal, finishes on patterned metal and edge-protecting finishes for perforated metal.

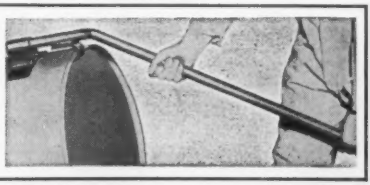
According to Donald W. Oakley,

(continued)

MORSE DRUM UPENDER No. 32

Takes the strain and effort out of upending heavy drums. Has 40" handle offset 35° for top efficiency. Hefty 1¼" hook provides clearance for largest chime. 2½" x 8" toe plate spreads lifting pressure over large area to prevent drum damage. Order Several Today!

MORSE MFG. CO., INC. **$8.40** FOB
762 West Manlius St., E. Syracuse, N.Y.



For more data circle 407 on Postpaid Card

Metal & Thermit's Color Tree: shows plastisol and organosol finishes at Design Engineering Show. The "tree" has more than 150 coated steel and aluminum panels in 15 colors, smooth and textured surfaces.

vice president of M&T and general manager of the Coatings Division, the dispersion coatings—organosols and plastisols—exhibit excellent corrosion resistance, toughness, resiliency, and high resistance to scratching, scuffing and abrasion. A plastisol coating is currently used to protect the interior of domestic dishwashers manufactured by General Electric. Future application possibilities include radio and TV cabinets, automobile dashboards and other automobile decorative elements, he said.

Sel-Rex Executive Wins "Advertising Man of the Year" Award

G. S. Corigliano, manager, Marketing Division, Sel-Rex Corporation, Nutley, New Jersey, has been voted

G. S. Corigliano, manager, Marketing Division, Sel-Rex Corporation, displays the plaque awarded him by the Association of Industrial Advertisers, New Jersey Chapter, in recognition of his being voted "Advertising Man of the Year."

INCREASE PRODUCTION! CUT COSTS!
Your paint is factory fresh ready for use when mixed in a
MIRACLE PAINT MIXER
5 GAL. MODEL
¼ Pt. to 55 Gal. Mixers Available
Write to:
MIRACLE PAINT REJUVENATOR CO.
500 NORTH ROBERT STREET, ST. PAUL 1, MINNESOTA

For more data circle 408 on Postpaid Card

"Advertising Man of the Year," by the Association of Industrial Advertisers, New Jersey Chapter. A bronze plaque was presented to Mr. Corigliano during a recent dinner-meeting.

A graduate of Columbia University, Mr. Corigliano has specialized in Industrial Marketing Activities for over twelve years.

In addition to his activities with the Association of Industrial Advertisers (he is currently senior vice president, New Jersey Chapter) Mr. Corigliano is also a member of the American Marketing Association and the Direct Mail Advertising Association.

Transparent Packages for Abrasive Discs

Small Abrasive Discs Packaged Transparently

Clear plastic tubes have replaced chipboard boxes as containers for small abrasive discs made by Behr-Manning Co. of Troy, N. Y., a division of Norton Company. The new package is being used for pressure-sensitive adhesive discs up to 2¼ inches in diameter.

The butyrate holders offer ease of opening and removal; complete protection for unused discs in storage; and dust-proof, moisture-tight packaging which retards drying of the adhesive coating. Shelf life is extended.

Discs in diameters from ½ inch to 2¼ inches are packaged in tubes of five sizes. The discs are used mostly on high-speed power tools and stationary disc sanders.

Finely Divided Polyethylene: U.S.I. Expects Market in Finishing Metals

The market for metal coatings is one of the many that U. S. Industrial Chemicals Co. hopes to tap in introducing a finely divided polyethylene this year. According to Dr. Robert E. Hulse, executive vice president of

(continued)

SOLVENTS and THINNERS RECOVERED

from wash thinners, spoiled lacquers, degreasing machine sludge, etc.

Solvents recovered by the Lofgren Process. Each customer's shipment, whether one drum or a carload, receives proper and separate treatment. *Write to:*

Solvents Recovery Service, Inc.
1025 Broad St. Newark 2, New Jersey

For more data circle 409 on Postpaid Card

BRUKO . . The only company in America with a full line of processing materials. Order your specially formulated products for cleaning, buffing, and polishing from

BRUCE PRODUCTS COMPANY
HOWELL • MICHIGAN

For more data circle 410 on Postpaid Card

Dr. Robert E. Hulse (right), U.S.I.'s chief executive officer, discusses progress in finely divided polyethylene technology with Howard L. Wilson, manager of U. S. Industrial Chemical Division's Polymer Service Laboratories.

National Distillers and Chemical Corporation and general manager of the U. S. Industrial Chemicals Division, a 2,000,000-pounds-per-year plant in Tuscola, Ill., will begin producing "Microthene" powdered polyethylene in March.

Finely divided polyethylene is already being used in Europe, where applications include textile and fabric coatings, binders for non-woven fabrics, coatings for paper and metals, additives for waxes and polishes, and molding powders to produce large polyethylene items such as boats, tanks and shipping drums.

According to Dr. Hulse, many of these applications and others will find acceptance in this country when techniques have been further developed.

Several techniques may be used in coating metal parts with polyethylene. Either dry powder or dispersions may be applied by spraying, dipping and slush coating. Alcohol dispersions are generally used on metals that would be corroded by water. With modifications of the various application techniques, strippable polyethylene metal coatings may be possible, according to U.S.I. specialists.

The fluidized-bed technique, which requires inexpensive equipment, is another method that can be used for

Conventional paint spraying equipment coats metal with polyethylene in the U.S.I. laboratory. This technique uses finely divided polyethylene, trademarked Microthene, dispersed in alcohol. Heating coated object in oven makes the coating a continuous film.

Telephone collect for free brochure on

STRIPPING COPPER

with

McKeon's "Liquid Sulphur"

Economical, fast, non-electrolytic

Sulphur Products Co., Inc.

McKeon Bldg., 621 W. Pittsburgh St., Greensburg, Pa.

For more data circle 411 on Postpaid Card

Hot metal object (400 deg. F.) being dipped in fluidized bed of powdered polyethylene, using Armstrong Products Co. fluidizer.

coating metal items ranging from irregular-shaped objects to wire. The item is first preheated and then dipped into a container with the fluidized dry powder, then frequently post-heated to achieve a smooth coating.

NEW DISTRIBUTORS

Samuel Moore & Co. Appoints Distributors

Samuel Moore & Co., manufacturer of extruded plastic products for industry, has appointed three distributors for the company's Universal Paint Spray Hose: The DeVilbiss Company, Toledo; Binks Mfg. Co., Chicago; and Gray Co., Inc., Minneapolis.

Barrett Chemical Products Appoints Mexican Representative

Barrett Chemical Products Co., Shelton, Conn., developer of the Barrett sulfamate nickel plating process, has appointed Enthone De Mexico, S.A., as manufacturer and exclusive representative in Mexico.

The Barrett sulfamate nickel plating process is a method of electrodepositing nickel having exceptionally low tensile stress.

Belke Appoints Great Western Chemical Co.

Appointment of Great Western Chemical Company as exclusive distributors of Belke equipment for platers in the eleven western states has been announced by Ralph Belke, vice president and sales manager of Belke Manufacturing Co., Chicago, Ill.

Great Western has warehouses at Spokane, Seattle, Portland, Eugene, Richmond and Los Angeles. Fifty salesmen travel the eleven western states.

The Metal Finishing department of Great Western is headed by Harold R. Smallman. The Los Angeles operation is managed by W. A. Nairne.

IDEAL TACK RAGS

FOR A PERFECT FINISH

Bulk, Bagged, 72 yd. pieces and continuous lengths.

Immediate Delivery

IDEAL CHEMICAL COMPANY

1499 DEAN DRIVE • SOUTH EUCLID 21, OHIO

For more data circle 412 on Postpaid Card

"GRIPALLOY"

. . . Attractive satin sheen ETCHING PRIMER in black and colors . . . Often used as finish coat . . . Air dries in minutes . . .

. . . Amazing tight adhesion to 25 different metals as reported by a large electrical manufacturer.

. . . Excellent resistance to Salt Spray, Gasoline, and Solvents . . .

TENAX, Newark, N. J.

Lacquers—Enamels

Synthetics—Vinyls

For more data circle 413 on Postpaid Card

Enthone de Mexico To Distribute Roto-Finish Products

G. Torres McDonald

G. Torres McDonald, well known Mexican metal finishing engineer and manager of Enthone de Mexico, has entered into an agreement that makes his company exclusive Mexican licensee for Roto-Finish processes and materials, according to an announcement by Roto-Finish Company, Kalamazoo, Michigan.

Mr. McDonald's company will stock, sell and distribute Roto-Finish chemicals, accessories and equipment to Mexican industry.

Chainveyor Adds Distributors

Chainveyor Corporation has appointed Equipment for Industry, 1265 Atlantic Ave., Brooklyn, N. Y. as Metropolitan New York distributor, and Earle C. Call & Associates, 1485 Bay Shore Boulevard, San Francisco, Calif., as San Francisco representative. Chainveyor makes overhead conveyor equipment.

"BLAST IT"
YOUR One SOURCE For All BLASTING NEEDS WET & DRY
HYDRA POWER BLAST
AUTOMATION SERVICES, INC.
DETROIT 38, MICHIGAN U.S.A.
A UNIT FOR Every JOB
MEDIA FOR Every APPLICATION
Distributors & Rep's in Industrial Areas

For more data circle 414 on Postpaid Card

Ultrasonic Industries Signs Agreement with Danish Equipment Firm

Ultrasonic Industries Inc., Albertson, L. I., New York, and Industrikeme A/S, Denmark's leading metal finishing equipment manufacturer, have signed agreements for the distribution of each others products in their respective countries.

The first product resulting from the new tie will be a two-stage, half-gallon-capacity ultrasonic vapor degreaser made of Scandanavian stainless steel, the ultrasonic portion of which will be made in the United States while the balance will be fabricated in Denmark.

Seymour Appoints McKesson & Robbins, Inc., To Distribute Electroplating Products

McKesson & Robbins Inc., has been named distributor for Seymour Manufacturing Company's electroplating additive agents.

The appointment was announced jointly by Wm. P. Haberland, manager of the Seymour Manufacturing Co., Electro Chemical Division and John E. Zacharias, vice president of McKesson & Robbins Inc.

British Company Formed To Market Acme Polishing Equipment

A company named Acme-Efco Ltd., has been formed to market the complete line of Acme polishing and buffing machines in Britain. Acme-Efco Ltd. is owned jointly by Acme Manufacturing Co., Detroit, and Electro-Chemical Engineering Co. Ltd. of Sheerwater, Woking, Surrey, England.

The new company will manufacture and sell the complete line of Acme machines, including automatic straight line, indexing and continuous rotary polishing machines; semi-automatic machines; flat sheet and coil stock

Acme polishing equipment being shipped from the company's Detroit plant to the newly formed Acme-Efco plant in England.

polishing machines; adjustable buffing and polishing lathes; deburring machines and special-purpose finishing machines.

NEW POSITIONS

John F. Green appointed general manager of Pacific Coast Operations, Paint and Brush Division, **Pittsburgh Plate Glass Company.**

He succeeds **Herschel E. Post,** who will serve as consultant for the company's Pacific Coast Operations until his retirement becomes effective on November 1, 1960.

★ ★ ★

Roger D. Freriks appointed manager of **Pittsburgh Plate Glass Company's Ditzler Color Division** in Detroit. He succeeds **John F. Green** who has been named general manager of the paint and brush division's Pacific Coast Operations with headquarters at Torrance, California.

R. G. Richards appointed to newly established position of Director of Development, **Diamond Alkali Co.,** Painesville, Ohio.

★ ★ ★

J. Leo Masterson, West Coast regional sales manager for Du Pont finishes, retired May 31 after a career of 34 years in sales of the **Du Pont Company's** paint products.

INDUSTRIAL ABRASIVE COB PRODUCTS

- **COB GRITS (Blasting)**
- **COB FLOUR (Foundry)**
- **COB MEAL (Tumbling & Drying)**

For Plastic and Metal Finishing

TI-CO INDUSTRIES, INC.

P. O. BOX 185 • TIPTON, INDIANA

Phone or Telegraph: FEderal 2-5942, Elwood, Indiana

For more data circle 415 on Postpaid Card

Clifford J. Grube appointed manager of field sales for Texas Instruments Incorporated, Metals & Controls Division.

As manager of field sales, Mr. Grube will be responsible for a force of fifty field sales engineers in the U.S. and Canada.

Robert A. Schultheiss, manager of field sales since 1956 has been named merchandising manager.

As merchandising manager, Mr. Schultheiss will be responsible for advertising, sales promotion and graphic arts at Metals & Controls Div.

Clifford J. Grube

R. A. Schultheiss

Midland Industrial Finishes Company, Waukegan, Illinois, has promoted two executives: **Edward J. Bromstead,** to supervisor, Metal Decorating Laboratories Division; and **Richard E. Caplan** to supervisor of the Product Development Laboratories.

★ ★ ★

Eugene E. Logue appointed technical director in charge of research and new product development for **Solventol Chemical Products, Inc.,** Detroit producer of metal-cleaning products.

Eugene E. Logue

R. F. Protiva

R. F. Protiva named manager of the Cleveland plant of **Heil Process Equipment Corp.,** Cleveland. He will be in charge of all manufacturing, estimating, and product promotion of the company's line of chemical resistant process equipment including lined acid tanks, Nocordal impervious graphite heat exchange equipment, steam jet agitators and numerous corrosion resistant linings.

★ ★ ★

Detrex Chemical Industries Inc., Detroit manufacturer of cleaning and metal processing chemicals and equipment has promoted **E. W. Allison** to vice president, in charge of all sales and marketing functions of the company.

E. J. Bromstead

R. E. Caplan

He will relinquish his current assignment as secretary-treasurer, which he has held for eleven years.

G. C. Van de Riet has been promoted to treasurer of the company, and he will continue his duties as controller.

F. J. Chmielnicki has been elevated to secretary of the company and legal counselor.

G. C. Van de Riet

F. J. Chmielnicki

James F. Zievers

H. Leslie Ferguson

E. W. Allison

A. L. Barak

A. L. Barak, treasurer and assistant secretary of the **Udylite Corporation**, retired on April 28.

Mr. Barak, who served in the financial department of Udylite for twenty-five years, had served as assistant treasurer and auditor before being elected treasurer and assistant secretary of the company. Elected to succeed Mr. Barak is **Joseph J. Rice.**

James F. Zievers elected president of the Foreign Sales Division, Inc., **Industrial Filter & Pump Mfg. Co.**, Cicero, Illinois.

Mr. Zievers is vice president and general sales manager of Industrial Filter & Pump Mfg. Co., and has served in various sales and executive capacities during the past ten years.

H. Leslie Ferguson has joined **Sel-Rex Corporation** as resident service engineer for the New England states.

Mr. Ferguson will make his headquarters at the firm's New England offices in Providence, Rhode Island.

★ ★ ★

Michael DePiano appointed sales manager of **Cooper Alloy Corporation**, Hillside, N. J., manufacturer of stainless steel castings, valves and fittings, plastic pumps, valves and fittings. Mr. DePiano succeeds **Clayton L. Heintz**, who has established a sales agency which will represent Cooper Alloy in Philadelphia.

★ ★ ★

Amchem Products, Inc., Ambler, Pa., has promoted **Leo C. Damskey** from sales supervisor to sales manager, Midwest District, Metalworking Chemicals Division. Mr. Damskey will make his headquarters at the District Sales Office, in Detroit, Michigan.

Oran E. Crisler has been promoted

(continued)

Oran E. Crisler

Leo C. Damskey

from staff assistant to the newly created position of assistant sales manager, Midwest District, and **Ken C. Kramer** to sales supervisor in the district formerly supervised by Mr. Damskey.

★ ★ ★

Sam S. Como appointed assistant sales manager of **Unit Process Assemblies, Inc.,** Woodside, New York manufacturer of coating thickness testers and periodic reverse equipment.

Gordon R. Kastler

Sam S. Como

Gordon R. Kastler promoted to manager of the Salt Lake City, Utah, branch of the **L. H. Butcher Company,** manufacturer and distributor of Udylite metal finishing equipment and supplies in the western states.

Hanson-Van Winkle-Munning Company recently appointed **Glenn M. Herring** assistant to the vice president-sales.

In his new capacity, Mr. Herring will assist in general H-VW-M sales management under R. M. Norton, vice president-sales. He will continue to manage the Eastern Sales District, with headquarters at Matawan.

Hanson-Van Winkle-Munning Company is a large manufacturer and supplier of electroplating and anodizing processes, equipment and supplies.

Glenn M. Herring

R. I. Peters

Robert I. Peters named manager of the Rigidon plant of **Heil Process Equipment Corporation,** Cleveland, Ohio. He will be in charge of all manufacturing, estimating, and product promotion of the company's Rigidon reinforced plastic corrosion resistant process equipment, including fume scrubbers, fans, tanks, tank covers, hoods, ducts, stacks and accessory equipment.

★ ★ ★

Five promotions within the **J. O. Ross Division of Midland-Ross Corporation,** New York City, were announced recently.

Robert W. Grott, currently district manager of the Ross Seattle office, goes to the New York office as assistant chief engineer for the Division.

Paul Goldner replaces Mr. Grott as district manager of the Ross Seattle office.

George Schuning, formerly a sales engineer in the Ross Chicago office, becomes district manager of the Boston office.

Dave Alexander, now a sales engineer in the Boston office, will be assigned to the New York office.

Ken Jones has been made district sales manager in the New York office.

★ ★ ★

Dr. Cloyd A. Snavely has joined **Sifco Metachemical, Inc.,** Cleveland, as general manager.

Sifco Metachemical, Inc., formed in February, 1959 as a subsidiary of The Steel Improvement and Forge Company, Cleveland, holds the North American rights to several European processes in the electroplating field.

Dr. Cloyd A. Snavely

James E. Taylor

Nordson Corporation, Amherst, Ohio, appointed **James E. Taylor** as district sales manager for Nordson airless spray equipment in the southeast area of the United States.

★ ★ ★

Joseph J. Rice has been elected treasurer of the **Udylite Corporation,** Detroit manufacturer of plating equipment and supplies. He succeeds **A. L. Barak,** who retired.

An employee of Udylite since 1946, Mr. Rice was previously controller, assistant secretary and assistant treasurer.

Joseph J. Rice

Ted Krauth

Ted Krauth, of the Tri-States Spray Equipment Co., Omaha, Neb., has been appointed factory representative for the driQuik line of ceramic-type electric infra-red industrial drying ovens manufactured by the **Dry Clime Lamp Corp.,** Greensburg, Indiana.

★ ★ ★

Gilbert C. Strubell, plant manager of American Brass Company's Torrington Division, appointed administrative director of metallurgy and research.

Lucius H. Bassett, formerly works manager of the Anaconda Aluminum Company's plant at Terre Haute, Ind., succeeds Mr. Strubell.

MEETINGS

Gordon Research Conference on Organic Coatings to be Held in August

The Gordon Research Conference on Organic Coatings will be held during the week of August 8-12 at New Hampton School, New Hampton, New Hampshire.

(continued)

The following lectures will be given during this week:

Diffusion of Gases and Vapor through Pigmented and Unpigmented Vinyl Films—Glass Transition Effects, by C. A. Kumins.

Inferences Regarding Polymer Structure and Properties from Solubility Studies, by E. G. Bobalek.

Fluidized Bed Coatings, by J. Gaynor.

Organosol Finishes from Acrylic Two-Stage Emulsion Copolymers, by Claus Victorius.

The Rheology of Film Curing, by Raymond R. Myers.

Thermosetting Acrylic Resin Coatings, by J. C. Petropolous.

Some Research Problems in the Coating of Paper, by John W. Swanson.

The Chemistry and Technology of Polyvinyl Drying Oil Fatty Acid Esters, by A. E. Rheineck.

Adsorption and Pore Volumes of Unsupported Organic Films as Related to Filiform Corrosion Processes, by W. H. Slabaugh.

Attendance at the conference is by application. Interested persons should write W. George Parks, director, Gordon Research Conferences, Department of Chemistry, University of Rhode Island, Kingston, R. I.

Protective Coatings To Be Subject of N.A.C.E. Conferences

Four symposia and five technical committee meetings on protective coatings will be held during regional meetings of the National Association of Corrosion Engineers this Fall. Meetings where paints and protective coatings will be discussed are as follows: Southeast Regional Conference, Atlanta, Ga., Oct. 6-8; Northeast Regional Conference, Huntington, W. Va., Oct. 11-14; South Central Regional Conference, Tulsa, Okla., Oct. 25-27.

More information on these conferences may be obtained from National Association of Corrosion Engineers, 1061 M & M Bldg., Houston 2, Texas.

SOCIETIES

N.A.M.F. Publishes Management Manual

The National Association of Metal Finishers has published a management manual. According to Edward N. Marlette (Marlette Plating Co., Buffalo, N. Y.), N.A.M.F. educational chairman, the 200-page book is being prepared exclusively for members of the National Association of Metal Finishers. It will be released at the N.A.M.F. annual convention this July in Los Angeles.

The manual contains information on operating costs, cost-determination methods, plating specifications, trade practices, ethics, first-aid, shop practices, personnel, public relations, polishing and buffing, salaries and wages, other topics of interest to job platers and finishers.

Described as "one of the most important projects in the history of the job plating industry," the management manual is written for owners and operators of metal finishing firms, as well as department heads.

Official title of the publication is *NAMF Management Manual.* Prepared in looseleaf form, permitting the addition of supplements and changes, the manual has easy-to-find, specially tabbed sections.

The N.A.M.F. is introducing this industry manual with a special prepublication offer. Members ordering before August 1, 1960, will receive copies for $20. Regular price after August 1 will be $25 per manual.

Chairman Marlette also announced a special offer which will enable men who join N.A.M.F. as new members to receive the manual at a special price.

For further information, write The National Association of Metal Finishers, 11 Park St., Montclair, N. J.

TRAINING COURSES

Nordson Corporation Announces Dates for Airless Spray Training School

The Nordson Corporation, Amherst, Ohio, has announced two fall sessions at its training school on the operation and maintenance of airless spray equipment: September 13-16 and November 15-18.

The curriculum of the Nordson Training School includes sessions on modern coating materials, use and maintenance of airless spray painting equipment, spray techniques, trouble shooting. Tuition is free. Anyone genuinely interested in airless spraying may attend.

It is advisable for those who wish to attend to make application as far as possible in advance. Application blanks and additional information may be obtained from the Nordson Corporation, Amherst, Ohio.

Free Course in Electroplating

The course of study in electroplating given at the Fort Greene Evening High School, 29 Fort Greene Place, Brooklyn, N. Y. (formerly Brooklyn Evening Technical High School) will begin its Fall term on Sept. 15, 1960.

The session is divided into classroom discussion and laboratory experiments. The classroom topics will include simple calculation, reading graphs, chemistry of the plating tank, pH, wetting agents, pitting, deionizing. The laboratory experiments will include solution analysis, Hull cell studies, anodizing.

Registration begins September 12, 1960, and will be held daily thereafter from 7:00 to 8:30 P.M. Classes will meet on Tuesday and Thursday from 6:45 to 8:15 P.M., including about six Fridays. The term begins September 15 and ends January 31, 1961. Register with L. Serota in Rooms BW17 or 3E12.

AGATEEN

70%
OVER ~~50%~~
of Watch Dial Manufacturers in the U. S. A. use
AGATEEN #27
Crystal Clear Air Dry Lacquer.

Agate Lacquer Mfg. Co., Inc.
Serving Industry Since 1927
11-13 43rd Road
Long Island City, N. Y.
Stillwell 4-0660-1

AGATEEN
THE LAST WORD IN QUALITY

For more data circle 416 on Postpaid Card

MEETINGS of INTEREST to FINISHERS

Aug. 6. Stag Day, Detroit Branch, A.E.S., Glen Oaks Country Club, Farmington, Mich.

Sept. 16. Second Metropolitan Regional Technical Session, A.E.S., (Newark Branch is host), Robert Treat Hotel, Newark, N. J.

Sept. 17. 24th Annual Educational Session and Banquet, Boston Branch, A.E.S., Hotel Statler, Boston, Mass.

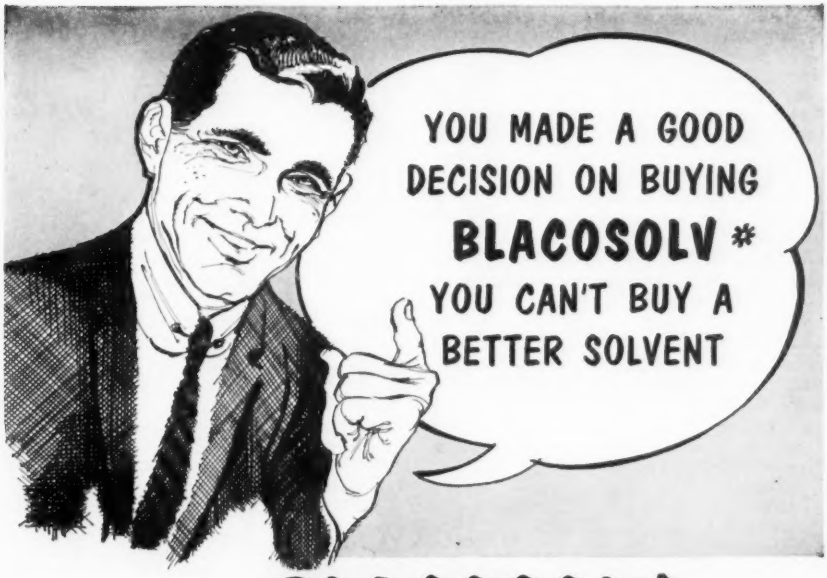
Oct. 9-13. Fall Meeting, The Electrochemical Society, Shamrock Hotel, Houston, Texas.

Oct. 17-21. 42nd National Metal Exposition and Congress, A.S.M., Trade and Convention Center, Philadelphia, Pennsylvania.

Oct. 29. Second Annual Meeting, Midwest Regional Council (St. Joseph Valley Branch is host), University of Notre Dame, South Bend, Indiana.

The Finishing Touch

"Some day we hope to have a separate dark room for making our wood-grain plates . . ."



USE BLACOSOLV®

Get the best possible solvent — plus invaluable professional advice!

When you buy Blacosolv you profit two ways. Blacosolv trichlorethylene assures better parts cleaning due to the entirely new and different stabilizers that prevent solvent breakdown and acid formations. Then too, you receive periodic visits from your representative, who offers you friendly, professional assistance whenever you require it.

Here's What One Manufacturer Wrote:

"When we contacted your representative he immediately visited our plant and helped us to correct the faulty operation of the machine. While this may be considered as part of his duties in your company, to us it meant a savings of dollars in lost time, and enabled us to immediately start production."

J. GRANDOLFI, ***Production Manager***
MALLORY BATTERY CO., North Tarrytown, N.Y.

*Blakeslee's brand of stabilized degreasing solvent

Dept. 104-Z

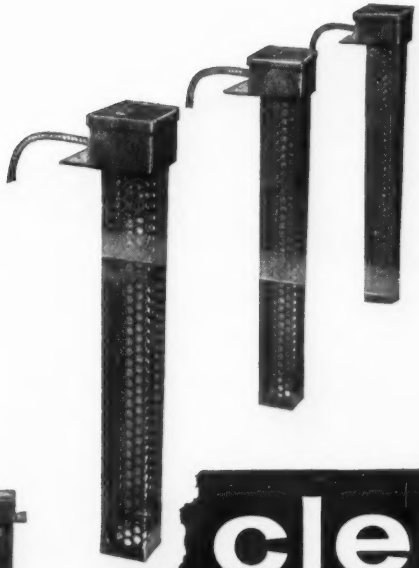
G. S. BLAKESLEE & CO.
1844 So. Laramie
Chicago 50, Illinois

NEW YORK • LOS ANGELES • TORONTO

For more data circle 417 on Postpaid Card

JULY ADVERTISERS' INDEX

Abbott Ball Co. 32
Agate Lacquer Mfg. Co., Inc. 173
Alchemize Corp. 132
Allied Chemical Corp., Solvay Process Div. .. 29
Allied Research Products, Inc. 70, 71, 123
Almco, Queen Products Div., King-Seeley Corp. 125
American Brass Co. 121
Apex Alkali Products Co. 120
Ardco, Inc. 154
Automation Services, Inc. 166
Automotive Rubber Co., Inc. 4
Barco Chemical Products Co. 140
Barnstead Still & Sterilizer Co. 6
Belke Mfg. Co. 10
Better Finishes & Coatings, Inc. 8
Bias Buff & Wheel Div., Riegel Textile Corp. 128
Binks Mfg. Co. 78, 79
Blakeslee & Co., G. S. 175
Bond Chemical Products Co. 108
Brady Co., W. H. 155
Bruce Products Co. 163
Cellusuede Products, Inc. 124
Cincinnati Cleaning & Finishing Machinery Co. 22
Cleveland Process Corp. ..... Third Cover
Cohn Mfg. Co., Inc., Sigmund 106
Consolidated Vacuum Corp. 30
Conversion Chemical Corp. 95
Cowles Chemical Co. 36
Crescent Bronze Powder Co. 100
Deco Tools, Inc. 152
Detrex Chemical Industries, Inc. 11
Detro Mfg. & Sales Co., Inc. 144
DeVilbiss Co. 16, 17
Diamond Alkali Co. 48, 49
Diversey Corp. 135
Dixon & Rippel, Inc. 153
Dixon Sintaloy, Inc. 34
Dresser Electric Co. 126
Dry Clime Lamp Corp. 110
du Pont de Nemours & Co., Inc., E. I. .. 112, 113
Dytex Chemical Co. 122
Electrochemical Products, Inc. 65
Electro-Glo Co. 89
Enthone, Inc. 97
Federated Metals Div., American Smelting & Refining Co. 15
Fortune Industries, Inc. 150
Fostoria Corp. 129
G. S. Equipment Co. 3
Gasway Corp. 131
General American Transportation Corp., Kanigen Div. 33
Glidden Co. 111
Globe Chemical Co., Inc. 68
Hammond Machinery Builders, Inc. 7
Hanson-Van Winkle-Munning Co. .58, 59, 102, 103, Fourth Cover
Harper Buffing Machine Co. 101
Harshaw Chemical Co. 80, 81
Hooker Chemical Corp. 99
Hull & Co., Inc., R. O. ..... Second Cover
Ideal Chemical Co. 165
Jelco Finishing Equipment Corp. 116
Kanigen Div., General American Transportation Corp. 33
Kalamazoo Tank & Silo Co. 136
Kelite Corp. 117
Klem Chemicals, Inc. 139
Kushner Electroplating School 160
Lord Chemical Corp. 53
M-F Equipment Co., Inc. 98
MacLeod Co. 115
Magnus Chemical Co., Inc. 31
Magnuson Products Corp. 114
Meaker Co., Subsidiary of Sel-Rex Corp. .. 35
Mearl Corp. 21
Metalwash Machinery Corp. 105
Metaplast Process, Inc. 77
Michigan Chrome & Chemical Co. 23
Microbeads, Inc. 18
Miracle Paint Rejuvenator Co. 162
Mitchell-Bradford Chemical Co. 14
Moore & Co., Samuel, Synflex Products Div. 9
Morse Mfg. Co., Inc. 161
National Association of Metal Finishers .. 141
New Holland Machine Co. 130
Niehaus Bros., Inc. 134
Norton Co. 2
Oakite Products, Inc. 1
Packer Machine Co. 119
Parker Rust Proof Co. 90, 91
Pee Cee Tape & Label Co. 20
Pennsalt Chemicals Corp. 63
Pioneer Rubber Co. 104
Pittsburgh Plate Glass Co. 12, 13
Plating Products, Inc. 147
Randolph Products Co. 138
Ransburg Electro-Coating Corp. 27
Ransohoff/Roto-Finish 69
Riegel Textile Corp., Bias Buff & Wheel Div. 128
Rockwell Co., W. S. 137
Ross Engr., J. O., Div. of Midland-Ross Corp. 28
Sel-Rex Corp. 35
Sethco Mfg. Co. 151
Solvay Process Div., Allied Chemical Corp. .29
Solventol Chemical Products, Inc. 127
Solvents & Chemicals Group 24, 25
Solvents Recovery Service, Inc. 163
Spra-Con Co. 109
Spraying Systems Co. 118
Sulphur Products Co., Inc. 164
Synflex Products Div., Samuel Moore & Co. 9
Syntron Co. 133
Tenax Finishing Products Co. 165
Ti-Co Industries, Inc. 167
Timesaver Sanders 26
Titanium Products Corp. 156
True Brite Chemical Products Co. 136
Udylite Corp. 19, 55
Unit Process Assemblies, Inc. 143
Univertical Corp. 107



clepco
FUSED QUARTZ IMMERSION HEATERS

FAMOUS THROUGHOUT THE PLATING INDUSTRY

For Quality, Efficiency, Low Cost Operations

OVER 100,000 INSTALLATIONS

For alkaline or acid heating jobs, you can depend on
CLEPCO ELECTRIC IMMERSION HEATERS

CLEPCO STEEL and STAINLESS HEATERS
will meet all your specific needs.

Low Heat Density — Long Life — Vapor-proof junction Box.

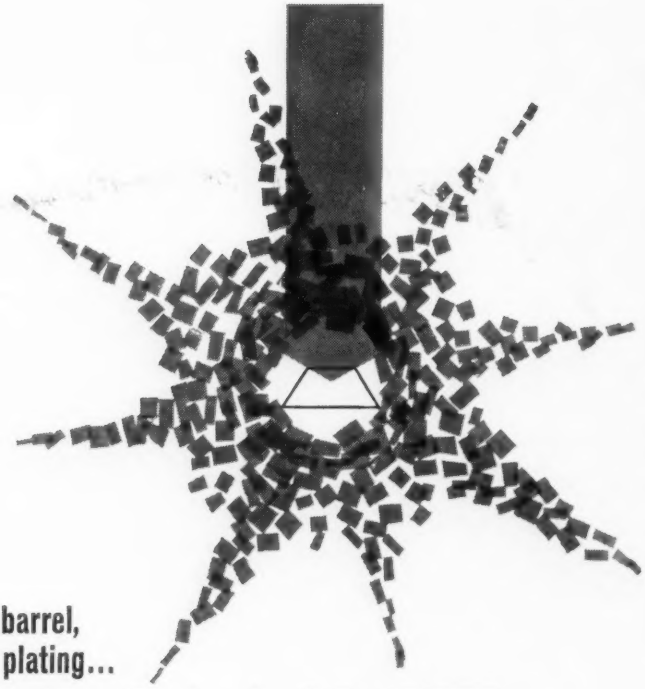
See Your Plating Supply House.

SEND FOR COMPLETE INFORMATION

THE CLEVELAND PROCESS CORP.

1773 EAST 21ST STREET • CLEVELAND 14, OHIO

For more data circle 302 on Postpaid Card



best for rack, barrel, or continuous plating...

ZINCALUME

one-step bright zinc process

Versatile Zincalume handles *all* methods of plating . . . all types of work . . . and plates bright *right out of the bath.* While it readily accepts conversion coatings, Zincalume eliminates the *need* for a bright dip in many applications.

Zincalume is economical, too . . . saves you money because it saves you a step no matter what plating method you use. For detailed information, write to:

Hanson-Van Winkle-Munning Company, Matawan, New Jersey.
Offices in Principal Cities.

Alert Supply Company is H-VW-M in the West.
Los Angeles • San Francisco

P.S. We are *not* out of the bright dip business. Fact is, we're proud of the one we make. A bright dip will improve brightness and shelf life of any zinc finish, but Zincalume looks fine right out of the tank or barrel.

H-VW-M

Progress in metalfinishing through advanced processes • equipment

For more data circle 303 on Postpaid Card